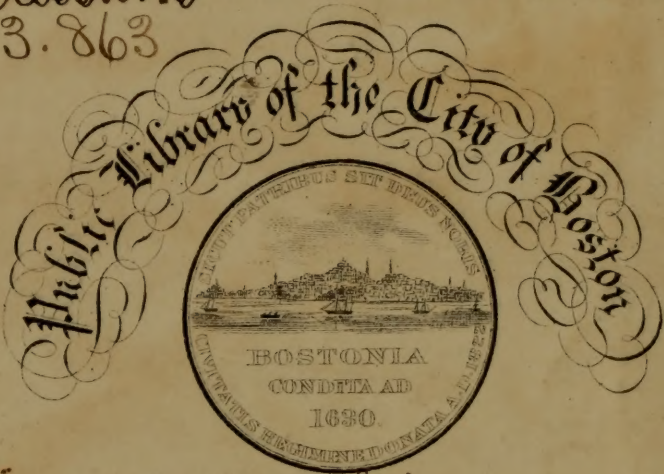


7. J. 3.

PROPERTY OF THE
PUBLIC LIBRARY OF THE
CITY OF BOSTON,
DEPOSITED IN THE
BOSTON MEDICAL LIBRARY.

Accessions
13.863

PRESENTED TO THE 3803.25



By Walter Channing, M.D.
Received Mar. 18, 1856. No.

THE
LIBRARY OF THE
MUSEUM OF NATURAL HISTORY
NEW YORK

INQUIRIES

Concerning the VARIETIES of the

PULSE,

And the particular

CRISIS

Each more especially indicates.

Written originally in FRENCH,

By Mr. D E B O R D E U,

Doctor of the Faculties of PARIS,
and MONTPELLIER.

In vitium ducit Culpæ fuga si caret Arte.

HOR.

L O N D O N.

Printed for, and sold by, T. LEWIS, in Ruffel-
Street, Covent-Garden; and G. KEARSLEY, in
Ludgate-Street.

MDCCCLXIV.



11

Walter Channing

13863.

Mar. 18, 1856

T H E

PRELIMINARY DISCOURSE.

THIS performance is no more than a series of observations, made with the most scrupulous attention; the subject is new, and equally interesting for the theory, and for the practice of physick.

To form a right judgment of these inquiries, it is essentially necessary to be entirely divested of contrary prejudices; and if any one undertakes to verify them, he must often reiterate the experiments, and look upon no article as decided, but as far as it shall be founded on results confirmed by several trials.

Until careful observers shall be assured of the truth of all these facts, should we

a

not

ii PRELIMINARY DISCOURSE.

not at least presume favourably of them by the observations related in this treatise? This will be an opinion the less hazardous, as many of these observations have been made on persons whose testimony can admit of no manner of contradiction; and it would be difficult to raise any probable suspicions of illusion, or prevention, to invalidate such a testimony.

We must however acknowledge that these reasons, tho' very plausible, can at first furnish but very little security against the obstacles which new started truths never fail to meet with.

M. Fagon was the first who maintained at Paris, the *existence* of the circulation of the blood; and he did it with all the force of argument, which we know can be alledged for the support of this truth; “ the old doctors gave great eulogiums to
“ the approved candidate, and acknow-
“ ledged, that considering the strangeness
“ of the paradox, he had not badly ac-
“ quitted

“ quitted himself *”: now do we know any one truth in physick, that can be supported by so many invincible proofs?

This single instance might have perhaps deterred us from our enterprize, if we had not reflected that (thanks to that philosophical spirit, which for some time seems to have diffused itself more and more thro’ the world) people are now more expert in laying hold on truth, than they were in former ages.

The Pyrrhonians of every kind are now a-days confined to just limits; they are no longer heard when they trangress them. The want of authority, or a jest, cannot now put a truth out of countenance, so far as to hinder her from shewing herself: premature judgments are therefore the less to be feared, as such changes have been happily made in the dispositions of men’s minds.

IV PRELIMINARY DISCOURSE.

But it has been demonstrated, we may say, by whatever is most evident in the principles of the art, that it is impossible to determine, and class distinctly, the different modifications of the pulse, so as to establish upon these differences, the signs peculiar to each critical evacuation; it is added also, that a man's whole life would scarcely suffice to be instructed and exercised as one ought to be in order to reduce those rules to practice.

We may at first advance, after a famous critic, § that, “reason is a vague and “unstable instrument which turns to all “points, like a weather-cock”: Montagne says also that “reason is a rule of lead “and wax, that may be drawn out, made “pliable, and accommodated to all biases, “and all measures”. Besides can reason alone have any weight in a matter that principally depends on observation, and the more so if it is founded only on principles, that are contradicted by matter of fact.

§ Bayle.

Now

Hence from this contradiction, as well as from the facility of conceiving and applying the rules now under consideration, we can alledge an irrefragable proof; which is, that in less than four months a young physician has been so well formed in the practice of those rules, tho' before he had no knowledge of them, but since that time he was scarcely ever mistaken†.

Besides, who does not know that there is a certain *manner* peculiar to every painter, to every writer, which discovers him immediately to the eye of a connoisseur? who is ignorant that in all arts there is a *coup d'oeil*, which discovers at first sight, to masters, what apprentices can scarce remark with the closest attention. It is just so with the different modifications of the pulse, scarcely perceptible to those who are not habituated to that examination, they are quite obvious to those that are practiced in them.

† M. M. Doctor of the faculty of Montpellier.

Solano de Luques, a Spanish physician, who lived at *Antequera*, at the beginning of this century, and of whom mention will be often made in the sequel of these inquiries, has struck out some new observations on the pulse. He has given an account of them in a treatise entitled, *Lapis Lydius Apollinms*. This performance fell into the hands of Mr. Nihell, an Irish physician then settled at Cadiz||; he found it so obscure, that he resolved to set out for *Antequera*, to have from the author some explanations that he wanted. Solano made him often witness of the justness of the predictions, that had been made according to his principles; since that time it often fell out that Mr. Nihell made happy applications of these rules; of which he gives an account in a collection of observations, which he has published on that head, and dedicated to Doctor Mead, a celebrated physician in London.

This collection contains the principal observations of Solano, and those of twelve

|| In 1743.

Spanish

Spanish physicians, made according to the principles of that observer, with the author's own observations, to which he has joined several excellent remarks upon the advantages that may be drawn from that discovery.

M. Lavirotte, physician of the faculties of Paris, and Montpellier, published in 1748, a translation of Mr. Nihell's treatise with a preface, in which he has displayed very well the importance of the subject treated of in that performance*.

Mr. Senac first physician to his Majesty, whose abilities as well as zeal for the advancement of his art are generally known by his success, and by his excellent writings, was soon struck with the utility of the observations of Solano; and to verify them, " he ordered while he was at Brus-
" fels, several sick soldiers to be put in a par-
" ticular ward of the hospital; he always

* New and extraordinary observations on the prediction of crises, &c. by *D. Francisco Solano de Luques*, enriched with many new cases, by Mr. Nihell, M. D. 1748.

viii PRELIMINARY DISCOURSE.

“ observed the rebounding pulse to indicate
“ hemorrhages, he observed also that a
“ looseness was very often predicted by
“ the intermitting pulse ; he observed that
“ it was much more difficult to distin-
“ guish the *inciduus* pulse, and thereby to
“ predict a sweating†”.

Mr. Van Swieten says, in speaking of the observations of Solano, and Mr. Nihell,
“ that this subject is so important, that
“ it deserves the attention of all those that
“ apply themselves to physick”.

In fine, M. Noortwyk has thought it incumbent on him, to translate into Latin the treatise of Mr. Nihell §; he has added to it a preface, wherein he declares himself in favour of the rules of Solano, and he relates a singular observation concerning the pulse that indicates sweating‡.

The author of these inquiries, owes his first ideas on this subject, chiefly to the

† Dissertation on crises, 1752.

§ 1746.

‡ See Chap. 18 concerning the pulse of sweating.

manner in which he was often struck with some modifications of the pulse that appeared singular to him. However, he dared not look upon them at first but as some odd movements, and scarcely of any consequence; it was not till after having seen the translation of M. Lavirotte, that he comprehended the importance of his first observations, and that he resolved to study them seriously, either in the hospitals, or in the course of his daily practice.

“ In the year 1707, whilst Solano, then
 “ student in physick, followed for his practice
 “ Joseph Pablo, professor and vice
 “ dean of the university of Grenada, in
 “ the royal Hospitals of St. JEAN DE DIEU,
 “ and *du Refuge*, he often observed the
 “ rebounding pulse; he asked Pablo what
 “ it meant, but he being a man of a very
 “ violent temper, desired him to pay no
 “ regard to such trifles, which proceeded
 “ only from fuliginous vapours; happily
 “ Solano was not discouraged ¶.

¶ Observ. nouvelles et Extraord.

If Pablo had answered as the moderns might have done, that these whimsical variations of the pulse were only irregularities of little importance, very common in certain states of irritation, or spasms, he would have given a less ridiculous explication of it ; but he would have no less substituted vague ideas, to the new observations which should have been made upon a fact that deserved to be examined to the bottom. This instance may be presented by way of an apology, to such as may be tempted to be as hasty in their decision on this subject, as Joseph Pablo was.

All physicians know that Galen has given a very extensive system concerning the pulse : there are few who do not look upon this system as entirely destroyed by the doctrine of the moderns : it is in fact fallen into oblivion.

One thing however very important to be remarked, is that among all the classes of the pulse described by Galen, we find
the

the description of a particular sort which announces sweat. This species has withstood all opposition ; it has been, since Galen's time, admitted by all practitioners. Should we not presume that since sweating is indicated by a particular sort of pulse, all other excretions may and ought in like manner be preceded by a pulse that is appropriated to them.

Galen, when he composed his treatise of the pulse, reasoned much more than he had observed : he comprehended however that each different species of the pulse should be distributed into as many different classes : but there was some difficulty to characterize them, and to make them distinguishable ; besides to express them in an intelligible manner. He hit out a method of describing those different specieses of the pulse, by their relation to things, which he looked upon as well known. He pretended to have found pulses that resembled the movement of ants ; he called this sort *formicans* ; others which gradually diminished like the tail of a mouse,

xii PRELIMINARY DISCOURSE.

mouse, he called *miurus*; and he called, after Herophilus, *pulsus caprizans*, such as he imagined to represent the bounding of a Goat.

The Chinese, who are looked upon as very expert in the knowledge of the pulse, and have always been very attentive to this branch of physick, have followed Galen's example in respect to this *vocabulary*. It may be even possible that the antient Egyptian physicians had laid the first foundations of the ideas common to Galen, and the Chinese: be that as it may, the latter have mentioned a *rolling pulse*, that which moves like a *frog*; another which resembles the *glancing of a fish*, another that is like the *boiling of a pot*, and a fourth that resembles the *bill of a Hen**.

It was against this *vocabulary* of Galen, adopted by the old schools, that the moderns have principally drawn their pens;

* Vid. Joh. Conr. Barchusen de Medicinæ origin. et progressu dissert. de Chinens Medecina. Vid etiam Cloier Medulla Medicin. &c.

it was no difficult matter to throw a ridicule on all the particulars of the comparisons adopted by Galen: therefore the *formicans*, *miurus*, *caprizans*, and all the other pulses of this species were entirely laid aside.

The moderns contented themselves with divisions and denominations more simple, and even in appearance more significant: they have divided the pulses into *strong* and *weak*, *frequent* and *slow*, *great* and *small*, *hard* and *soft*, &c. These denominations have also been made use of by Galen.

But it is very obvious that this *vocabulary* adopted by the Moderns, has near as many defects as that which they have rejected; because in fact these denominations express nothing precise. It is not possible to determine by what mark one is to judge in a patient, that the pulse is for instance, *hard* or *soft*, *great* or *small*; it's *smallness*, and *greatness*, it's *softness*, and
hardness,

xiv PRELIMINARY DISCOURSE

hardness, being in the state of health at very different degrees, according to the different constitutions of the body. This judgment supposes a comparison to be made between the pulse, which by it's nature is judged *hard*, or *soft*, or *great* or *small*, and that which, on the moment that it is examined, appears to have some of these qualities. The knowledge of the first species, that is of the natural pulse, is wanting to the observer at the instant when he is feeling the pulse of which he is to judge: besides, it happens but too often, that a pulse appears *great* or *hard* to one physician which will appear *small* or *soft* to another: these definitions therefore, or denominations, can express nothing positive.

To avoid splitting upon the same rock on which Galen and the Moderns have foundered in respect to the *vocabulary* of the different modifications of the pulse, we have in this place employed only clear and simple divisions and denominations to determine each principal species.

It

It has been observed, that a pulse of a particular species indicated an evacuation towards the head, this pulse we call *capital*; when the evacuation is to be performed by the excretory organs of the breast, it is called *pectoral*. We have denominated it *intestinal* or *ventral*, when it is preparing by the viscera of the abdomen.

As to the distinctive characteristics of each species of the pulse, they have been so well determined that an observer may distinguish the *pectoral*, *capital*, *intestinal*, &c. without being obliged to make any comparison with unknown or distant objects.

The equality and inequality of the pulsations, the equality and inequality of the intervals between them, modifications very easily discernible, are the sources of the greatest part of the characteristics and denominations of each principal species of the pulse described in this performance. This method
therefore

vi PRELIMINARY DISCOURSE.

therefore of characterizing each species of the pulse, has many sensible advantages over that of Galen and the Moderns.

The denominations or terms of *pectoral*, *capital*, and *intestinal*, are derived from anatomy ; they are expressions received, and daily employed in physick : we say, the capital, GUTTURAL, *nasal*, *intestinal* artery ; we distinguish remedies into *pectoral*, stomachic, *cephalic* ; therefore these denominations applied to the modifications of the pulse, have nothing in them that ought to surprize us ; they ought rather to appear by so much the more appropriated, as they indicate the progress of nature in each species of the pulse.

Objectors will not perhaps proceed so far as to say, or think, that this *vocabulary* has been contrived to disguise or relate in other terms, and under particular denominations, what in the main is found disseminated thro' other performances. Let what will be the event, we can affirm before hand, that between the system of
Galen

Galen, the Chinese, Moderns, and that of these inquiries, there is no other relation, but what must be necessarily found in treatises on the same subject. But the object, views and proofs are entirely different: and these differences are so remarkable that it is not possible to hit upon any method, not only of maintaining but even of suspecting the contrary.

Those who are desirous of being convinced, need only consult L^e Clerc's history of physick; they may find there an exact extract of Galen's treatise on the pulse. What we know most positive of the system of the Chinese, is related in a well known performance†. In fine, the physical dictionary contains a very detailed exposition of the system of the Moderns.

It may be said that this performance is nothing else but an exposition and repetition of the observations of Solano. It is certain that we cannot contest this great observer's having started new ideas concerning

† Histoire des Chinois des Japonnois, &c.

xviii PRELIMINARY DISCOURSE.

the pulse. He has laid the foundations of a system which must overturn all that had been thitherto published on that head ; and tho' Mr. Nihell has greatly added to the observations of Solano, he cannot however in that respect, dispute the prize with him ; but there needs only the comparing of our inquiries with Solano's treatise, and even with the additions of Mr. Nihell, to be convinced of the many differences that are among the three.

Solano has said nothing either of the *critical* or *uncritical* pulse : he has not observed the pulse that indicates critical expectorations ; he has not said one word of the pulse of the menses, or of that of the hemorrhoids ; he was not acquainted with the *complicated* pulses, which it is however very important to distinguish rightly. Solano has said nothing of the action of remedies on the pulse ; he has omitted making remarks on the pulse in the state of health, without a knowledge whereof we can hardly determine justly concerning the pulse in a state of sickness.

Solano

Solano has scarcely observed any thing concerning the exceptions that are to be made against the rules which he has laid down, (this defect, however, as well as those which regard several other articles, have been supplied by Mr. Nihell)---Solano has spoken but very slightly of the pulse of vomiting, and of that of urine; what he has advanced concerning the pulse of a looseness is also very incomplete; he has by far too much generalized his observations or his rules concerning the bleeding at the nose. His method of indicating, from the changes of the pulse, the day of a critical evacuation, is obscure and very imperfect; he has hardly said any thing of *compounded* pulses, or *simple* pulses combined with each other, which make up a very considerable part of the history of the different modifications of the pulse.

In fine, there is a very important difference between this performance, and that of Solano, to wit, all he has published on that subject, is reduced to some detached
b 2 observations ;

XX PRELIMINARY DISCOURSE.

observations; he does not seem so much as to have imagined that he could carry them much farther, and reduce them by that means to general principles, proper to throw upon the theory of the art, as much light as on the practice: whereas these are the views which form the principal object of the inquiries now presented to the publick. Our chief care is to compare, after a scrupulous observation, the course, the appearances, and the events of maladies given up to themselves, or treated according to the precepts of the art, with all the different modifications, *critical* or *uncritical*, of the pulse, observed, during the different periods, different degrees, and the different turns of these maladies

It is true however that in the commencement of this performance, the readers will find much less of that spirit of comparison, analysis, and discussion, than in the sequel. In fact, the subject does not allow it; it was absolutely necessary to begin by the exposition of the characteristics of the pulses, which

which we have denominated *simple* pulses, before we came to those of the *compounded* or *complicated*.

The maladies whose crises are preceded and announced by *simple* pulses, are never maladies of a bad sort. Those, on the contrary, where we find the *complicated* pulses, are generally dangerous. Now as the different springs of the play of the animal œconomy, are far from making themselves as sensible, and discernible in small impediments of the functions, as in the state of a grievous malady; it is therefore only in the exposition of *complicated* pulses, that we should place the examinations and discussions, which have conducted to the fruitful principles and important rules, which we have sought to establish.

Finally, we think it not improper to remark, that the subjects contained in all the parts of this treatise, are connected with each other, and consequently treated
in

xxii PRELIMINARY DISCOURSE.

in a manner fit to corroborate one another reciprocally: wherefore it is only after having thoroughly examined their relations that a solid judgment of them can be formed.



INQUIRIES

I N Q U I R I E S

CONCERNING THE

P U L S E.

C H A P. I.

A General Idea of the Pulse and it's different Species.

THE reader must not expect to find in this work, elementary definitions on the nature of the Pulse and it's differences: such disquisitions, which have been but too much multiplied, are matters of mere speculation, and don't belong to this treatise, which is founded on practice alone.

2 INQUIRIES concerning the PULSE.

A knowledge of the *Pulse* is only attainable by *feeling* ; it is by the agency of that sense we acquire an adequate idea, and proper intimation of it's essence ; even as we obtain, by experience, and not by reasoning, the ideas of colours, motion and heat.

It must however be owned, that the anatomy of those parts whose vibrations constitute the pulse, as well as the remarks of speculative physicians on the use of said parts, may greatly contribute to give us clear notions of the nature of the pulse ; but the knowledge of those particulars is pre-supposed in this treatise.

On feeling a pulse, we find it *hard* or *soft*, *slow* or *quick*, *great* or *small*, &c. but we are immediately perplexed with difficulties ; what must be the state of a pulse that is called *hard* or *soft*, *slow* or *quick*, *great* or *small* ? By what signs do we know the pulse to be such as we pronounce it ? *Hardness*,
softness,

INQUIRIES concerning the PULSE. 7

softness, greatness, quickness, &c. are only *different states, relative modes thereof*, which cannot be estimated but by a common and fix'd measure, to which all it's variations may be referred.

The want of such a measure occasions the difficulty of coming to a right knowledge of the pulse, † it is to this deficiency, that we must ascribe a great part of the different judgments which are sometimes pass'd on the same pulse. We shall see, in the following chapter, that one of the advantages of the method propos'd in this treatise is, to be less subject than the ordinary methods to the necessity or want of this measure.

Besides, use, practice and reiterated experiments supply, in this case, the defect of rules and exact measures: which is to be done by feeling often the pulse of all ages, sexes and constitutions, both of the

† The frequency and slowness make an exception of which we shall treat in the following chapter.

4 INQUIRIES *concerning the* PULSE.

sick and healthy. This operation frequently reiterated, forms insensibly the delicacy of the touch, which distinguishes the practitioner from the man of little experience.

We may acquire by this means, the habit of judging of the state of a pulse, we may say, without thinking of it, and sometimes without being well able to express the differences perceived. This difficulty characterizes, even in some degree, the nice touch of the practitioner, which consists only in the faculty of judging more soundly and surely than is generally done.

The natural disposition of the organs, their fineness, their aptitude, contribute infinitely to our catching the different graduations that distinguish the pulses; but it is not impossible to perceive these graduations, without the delicacy of touch; therefore the particular skill which physicians may acquire concerning the pulse, ought to be less attributed to any peculiar delicacy of their touch, than to their experience.

We

We soon perceive very distinct differences between the natural pulse of children and of old people. These are the two first fixed points to which one may refer every species of pulses, and of which it is proper to impress on the memory, as it were a graduated list.

The natural pulse of old men is much more *strong*, much more *hard*, than that of children. This is much more *quick* than that of old men: it is a known fact, and even susceptible of calculation; that is to say, that one may measure, at least pretty nearly, the excess of the quickness of childrens pulse over that of old men; we cannot in short, confound these two species of pulses.

The natural pulse of adults, who have a good constitution and are in full health, forms another kind of fixed point, to judge every other kind of pulse by. We observe in them a *suppleness* and *fulness* in *moderation*,

6 INQUIRIES concerning the PULSE.

tion; their pulsations are *easy*, *free*, very *distinct*, very *equal*; they are strong without being *violent*, *sensible* without too much *fulness*, or without too much *softness*.

This pulse seems *composed* of that of children and that of old men; it has the *ease* and *suppleness* of the first, without having it's *precipitation*; it has the *force* and *fulness* of the pulse of old men, without having it's *slowness*, *stiffness*, and *dryness*, which is the perfect state of the pulse. That of children wants only to *dilate* itself: it is *quick* and *hurried*; that of old men becomes *hard*, *contracted*, *embarrassed*, and *extinct*.

The natural pulses in the intermediate ages of these three fixed points, are more or less related, as they are more or less distant, or border upon the two extremes between which they are placed. We ascend by degrees from the pulse of children to that of adults, in passing through the intermediate ages. The pulse of children *expands* itself, *slackens*, acquires *consistence* and

and *ease*, in it's flow, 'till it arrives at a state of *maturity*, or the fixed *period* of the pulse of adult age; which loses it's *suppleness*, *vigour*, and *liberty*; and grows *hard* as it approaches old age.

The natural pulse of women is, in general, more *brisk*, and more approaching that of childhood and youth than the pulse of men; it has it's particular degrees, it's *youth*, *maturity*, and *old age*.

By thus setting out from some fixed points easily ascertained, concerning the nature and differences of the pulse, we extend and arrange our knowledge; we learn to place every species of the pulses in a proper point of view, where we may consider them; whereby too we may class them according to the order of nature, in the *table*, or *general list*, which the mind has formed to itself for that purpose.

The surest and most clear-sighted physicians in this kind of knowledge, are they

8 INQUIRIES *concerning the PULSE.*

whose heads are best furnished with all the images of the different kinds of pulses ; and in whom these images are so well rivetted, so well ranged, as to admit scarcely of any confusion, so that their memory distinctly presents them the idea of that species of pulse quite similar to that which they actually feel.

It is by means of such collected facts, that physicians understand one another, when they pronounce that a pulse is *hard*, *soft*, *quick*, *weak*, &c. They instantly comprehend the particular classes to which these denominations are to be referred, and without which they would convey no meaning.

Hence the reason appears, why from an exquisite distinguishing of these ideas, some physicians have their feeling, rendered by the effect of constant practice, so intelligently skilled, as on their very first tact, to be able to determine the state of the pulse, and as it were by a mere mechanical
move-

movement. How invaluable is such a gift? the parent of that noble enthusiasm to which groveling and frigid mortals can never rise, and whose sacred energy is felt but by superior minds, the only competent judges.

C H A P. II.

Of the particular manner whereby the different kinds of pulses will be distinguished in this treatise.

OF all the means of characterizing properly the different sorts of pulses, the least subject to mistake is that by which we may delineate each pulse, in such a manner as an observer need not be under a necessity of recollecting a pulse which he has formerly felt, in order to range that which he examines in the proper class to which it belongs.

One example will elucidate this proposition. It has been advanced, in the preceding chapter, that the denominations of the different pulses, *great, weak, soft, hard, full, empty*, having but a vague and indeterminate signification, it is necessary for him who would judge of a pulse, to know a common measure to which he may compare the *greatness, weakness, hardness*. He ought therefore to have in his mind the standard-piece, or pulse of comparison, to which he may refer that which he would judge of.

It is easy to comprehend that the attention is divided between these two objects, and that the operation by which the mind compares the present pulse with the absent, supposes a considerable effort: it may happen that the memory represents but weakly the image of the pulse formerly felt; or that the touch is diverted from it's actual subject; from whence may easily arise a very great confusion.

But,

But, if the species of pulses are so determined as that, in order to form a judgment of them, an observer need only be occupied with the pulse which he actually feels, and that he is assured of discovering the distinctive criteria of it, without being obliged to recal the particular species to which it is comparable; then the tact and the judgment of the pulse, become much more easy and more certain.

Now some of the principal characters given to the pulse, in this work, are precisely of a nature to be perceived, without attending to any other pulse than that which the observer actually feels.

In fact, the *equality* and the *inequality* of the pulsations, are the two principal sources from which we draw the differences of pulses. The *equality* of the pulsations is a thing very easy to be verified, as well as the *inequality*. The pulsations that are to be compared follow each other immediately ;

12 INQUIRIES concerning the PULSE.

ly ; and scarce hath one been felt, when the other succeeds. The impresson of the first is scarcely effaced in the finger before it feels the second ; which produces the same effect, or a different one ; whence results the *equality* or *inequality*.

They moreover should be considered in another manner ; for the differences or the intervals which are between the pulsations may be *equal*, or *inequal*, which is not absolutely difficult, to feel. These distances, or these intervals, furnish a new means to judge of the state of the pulse ; and this means is as simple as the preceding.

One may already judge of the advantage of this particular method over the general method mentioned in the preceding chapter, to which it will be sometimes necessary to have recourse.

There are, for instance, pulses which shall be called, *small, close, hard, full, dilated,*

lated, developped; it is as if one should say, more *small*, more *full*, more *soft*, more *developped*, than in the ordinary or natural state of the subject under examination. We should therefore be furnished with anterior observations, which give an idea of these natural qualities of the pulse; that is to say, that we should be practised in feeling many pulses, and above all, be directed in such a pulse-feeling process by men of consummate experience.

The *frequency* of the pulse, it's *celerity*, it's *quickness*, may be taken for the same modification, not to enter into any disputes which have divided some authors upon the difference to be made between the *celerity*, *frequency*, and the *quickness*.

However the *frequency* of the pulse may be exactly measured, it is very easy to compare the natural *frequency* with that which is against nature, as some physicians have already undertaken.

14 INQUIRIES *concerning the* PULSE.

The number of the pulsations is to be estimated by the time, which we can measure, as we feel the pulse. We may see exactly, how often the pulse beats during a minute, during a quarter of an hour, by means of a watch, or sort of pendulum. This pendulum is only a ball of lead suspended by a thread, which is put in motion, and whose oscillations or vibrations are more or less slow, according to the length of the thread, or according to the distance of the ball from the point whereto the thread is tied.

Every patient (perhaps too scrupulously) says a modern author, may, in case of need, have his pulse-pendulum, and acquaint his physician how often his pulse ordinary beats in a minute : the physician would then have the means of judging very exactly of the *frequency* of the pulse against nature : but this method is exposed to no small inconveniences : the principal is it's not being able to indicate the *equality* and the *inequality*

lity of the pulsations and of their intervals.

Besides, we shall often in this work treat of the *frequency*, without it's being taken for a distinctive characteristic of a different species of pulse. It shall be judged of and appropriated after the manner of ordinary practitioners; that is, by comparing the natural *frequency* with that which is against nature, according to the preceding observations, and the notions acquired by experience, without the help of a watch or pulse-pendulum.

It is proper to observe, that the *equality* and *inequality* of the pulsations are phenomena, to which all physicians since Galen have constantly paid a great attention: but these two modifications of the pulse have not hitherto been considered in the same light as they shall be in this treatise.

Finally, whatever use may be made of the pulse to judge of the nature and the events

16 INQUIRIES *concerning the* PULSE.

events of diseases, it is not to be supposed that we must limit ourselves to the pulse alone, to found our judgments on ; no, we must, after the example of all physicians, when we judge of the state of a disease, assemble all the symptoms, and weigh every circumstance : into how many mistakes should we not fall without this precaution.

We may meet, for instance, persons who are in good health, and whose pulse appears *very bad as to itself*, there are patients just at the agony of death, in whom the pulse appears *good in itself*: such cases, are pretty scarce, but shall be inserted and discussed in their proper place.

CHAP.

C H A P. III.

A general Division of the Pulse.

THE natural and perfect state of the pulse in adults, as set down and described in the first chapter, is the point from which we must set out in order to form an exact idea of the most general division of the pulses.

When the pulse is *equal*, *it's pulsations are exactly similar, they strike at distances exactly equal*; it is *softish, supple, free*; not *frequent*, not *slow*; *vigorous, without seeming to make any kind of effort.*

It seems that the harmony which results from the action of all the parts, produces and supports the existence and duration of this perfect pulse: whatever the manner may be whereby the organs concur to the motion of the heart and arteries, it appears certain that the ease of their functions, and

C

the

18 INQUIRIES *concerning the PULSE.*

the compressions, or gradual and cautious efforts, which are the consequence of them, ought to be deemed the true cause of the ease and freedom of the pulse. The vessels would burst if they were not compressed. Too great a compression would affect the circulation of the blood : the dilatation and constriction of the arteries are, perhaps, nothing but the continual counterballancing of all the *sensible* parts.

But if any part is disordered by any cause whatsoever, the harmony of the movements of the body is disturbed. Thus the motion of a ship that furrows the sea under full sail, with a fair wind, is notwithstanding easily impeded in her course by any change which the wind and cordage may produce in the working of the sails. The pulse is in like manner diverted from it's ordinary motion, whenever any organ of the body excites an unusual effort, compression or distractility.

It

It is in a word, demonstrable by a thousand experiments very easy to be made, that the pulse is disordered to a certain degree by the least pain, by the least effort, by any impulse of passion.

Now the natural pulse of adults, that under our present consideration, is principally disordered two ways, especially in the sick : the pulse from *free, developped, supple, softish, and pretty full*, that it was, *contracts* itself, becomes *quick, brisk, hard, dry, close* ; it *acquires* modifications like that of children, *sometimes without losing it's evenness* ; or else it *dilates* itself, becomes more *salient, full, strong, quick, and oftentimes uneven* ; these are then two considerable changes, and almost directly opposite. The one teaches how to form a just idea of the other.

The first species of pulse shall be called, *The pulse with too much sensibility, a pulse of irritation, nervous, convulsive, critical*. This pulse indicates no critical secretion, which

20 INQUIRIES *concerning the* PULSE.

is demonstrated by experience; it is very common in the beginning of diseases, and particularly in nervous cases. It ought to be studied with great care: a prudent practitioner becomes very circumspect when he discovers it, knowing very well by experience, that this pulse is exclusive of any favourable crisis. ‡

The second species of the pulse will be called, *dilated, devellopped, softened, extended, critical*, because it precedes critical evacuations, principally, when attended with *inequalities*.

The *devellopped* pulse is known to physicians; it always bodes well, provided it continues a certain time; if its pulsations are in every respect equal, both as to their distance and the force of the artery, then it indicates a disposition to evacuations in general, and not to any particular evacuation. The revolution which is called *coc-tion*, or the preparation of the humours,

‡ See Chapter 24.

that are to form the matter of the critical excretion, is then performing, but the organ by which the excretion is to be made, is not determined.

This pulse does not remain long in this state of indecision, especially in diseases of short duration ; scarcely does it shew itself in some of these diseases ; it is only in their middle state or crisis that it is generally discovered.

It must be looked upon as a necessary condition to a complete and happy crisis. If it happen that the excretions which seem critical, are not preceded by the *developped* pulse; and what is still worse, if they are brought on with the pulse of irritation, then every thing is to be feared ; because, thereby is constituted the case of *complication*, which will be examined hereafter. †

All these truths will be displayed at full length, and elucidated in the course of this work. An historical account of the *de-*

† See Chapter 27, 28, &c.

22 INQUIRIES concerning the PULSE.

velopped and critical pulse, or that which indicates critical excretions, shall precede that of the pulse of irritation or the uncritical.

C H A P. IV.

The division of the developped or uncritical Pulse.

HIPPOCRATES hath given in his aphorisms † a general division of diseases; the importance and extent whereof the commentators do not appear to have known. They are divided by him, into those *above or below the diaphragma.*

Hippocrates followed no other guide but Nature. He never lost sight of her, he knew how to trace her exactly. It is true in fact, that the diaphragma divides the body into two parts, and that there result from this division many remarkable effects.

Diseases

† Aphorism, 18 Sect. 4.

Diseases of the same kind shew in their progress essential differences, according as they are above or below the diaphragma.

In the course of this work, the reader will find ranged in their proper places, the remarks that are to be made with respect to another division of the body by it's axis, which divides it into two lateral halves.

It is necessary to take a survey of the manner how the first of these divisions may be justified in the eyes of anatomists, and relatively to the general laws of the blood's circulation.

The trunks of the great blood-vessels pierce the diaphragma. Their orifices are so disposed, that the course of the blood cannot be entirely suspended by the movements of this extraordinary muscle ; but is it possible to demonstrate, (rigorously speaking, when we consider the manner that the aorta passes behind the diaphragma, and in which it is situated between this

24 INQUIRIES *concerning the* PULSE.

muscle and the back-bone) that no effort of the diaphragma can affect the motion of the blood.

It would be too tedious to mention and discuss here, every thing that relates to this question, which truly deserves the attention of anatomists, as well as the examination of the passage of the vena cava through the diaphragma, and it's union, as well as that of the aorta, with the pleura and the peritoneum.

Be that as it will, if, as hath been advanced in the third chapter, all the parts influence the action of the heart and the blood-vessels, and consequently the motion of the pulse ; the parts that are in different regions must produce different changes ; and these changes ought to have some resemblance between them, when they are the effect of the action of the parts which are seated in the same region, under the direction, and in the department of the nerves that rise from the same plexus.

It

It follows from this remark, that the action of the organs of the abdomen ought to operate in the pulse a particular modification ; that of the organs of the breast another, as well as that of the organs of the head.

The reader must not expect to find here anatomical expositions, or discussions of theory ; and the more so, as all that can result from the differences of the action of the nerves upon the motion of the heart, and upon that of the blood-vessels, is already sufficiently known in general, so as to leave it no difficult matter to make some application thereof to the respective efforts of the organical parts.

But observation, which is the principal compass to steer by, demonstrates that there is a sensible difference between the pulses of patients in whom the critical evacuations are performed by the organs situated above the diaphragma, and those of persons whose
excretory

26 INQUIRIES concerning the PULSE.

excretory discharges are carried away by the organs situated below the diaphragma. There needs only to see patients to establish this truth, which the observations related in this treatise will place in it's full light.

We may, I think, denominate one of those pulses the *superior*, since it appears to be principally determined, or regulated, by the action of the parts above the diaphragma; and the other the *inferior*, since it appears to depend on the efforts of the inferior parts. They have each of them their peculiar and distinct characteristics, as may be seen in the following chapters.

CHAP.

C H A P. V.

Of the Superior Pulse, and it's different species.

THE *superior* pulse indicates the disorder of the organs, situated above the diaphragma ; it precedes the *critical* excretions of those organs. This kind of pulse has it's particular and distinct criteria, at least when it is undoubtedly the *superior*.

It is always remarkable by a *precipitate reduplication in the pulsations of the arteries*. This reduplication, which essentially constitutes it, appears to be nothing in reality but one pulsation, divided into two times, or pulsations : it is liable to intervals from time to time, these intervals are longer or shorter, more or less frequent according to the nature or degree of the disease.

The dilatation, which is performed in two times, or by a double effort, may be well enough

28 INQUIRIES concerning the PULSE.

enough compared to the effect of a piston, which should force a liquid into an elastic cylinder, so as that the second cast of the liquid does not wait for the spreading of the first in the vessel.

The characteristic of the *superior* pulse, is no more than the dilatation which should naturally be performed in one time, but which notwithstanding is performed in two times, and by two sensible efforts, and succeeds to a natural contraction of the artery.

There may be reckoned three sorts of *superior critical* pulses ; the first is that which announces, which follows, or which accompanies the excretions of the breast ; and for this reason, it seems scarce possible to design it better than by the denomination of the *pectoral* pulse.

The second sort is the *guttural*, that which is observable, at the end of the ordinary and simple maladies of the throat,
and

and which is followed by a spitting that proceeds from the glands of the throat.

The third species of the *superior* pulse is the *nazal*, which precedes the excretory discharges performed by the nose. This third species is subject to variations which might seem to form a fourth species, wherein all parts of the head concur in the excretory effort, as shall be seen in it's proper place.

Our present business is to describe exactly the *pectoral*, *guttural* and *capital* pulses; these different sorts of pulses are sometimes single, that is, when the excretion is performed by one organ only: in this case the pulse will be called *simple*; the *complicated* pulse, shall be that which is observed when the critical excretion is performed pretty freely, by two or many organs; one may call this kind of pulse *compounded*, and give the denomination of *complicated* to that which is observed in cases where the critical effort is interrupted or thwarted, by a state
of

of *irritation* which opposes the progress of the crisis.*

In whatever state these different kinds of *superior* pulses are, they always preserve a general characteristic that fixes them to their proper class. All which shall be settled and exactly described by detailed observations in the subsequent chapters.

We shall first treat of *simple* pulses, to pass afterwards to the *composed* and *complicated*; it is the most easy and natural order; but such is the concatenation of these matters, that the complete understanding of the one always depends on that of the other; we must therefore examine them all with a scrupulous exactness and attention, and above all not stop at difficulties that may seem to arise at first sight.

† See Chapter 17 and 24.

C H A P. VI.

*On the pulse of Critical excretions of the breast,
or Simple Pectoral.*

IT is a matter of the utmost importance to know this pulse, which is very common, because the excretions of the breast are very frequent, and that they are to be managed with more precaution than all the others.

The *simple pectoral* pulse indicates the critical excretion of the breast; always accompanies it, when it is quite compleated and critical, that is, when it is not thwarted by any other excretion making a greater impression on the pulse; or by any other modification, of which it may be susceptible. The *pectoral* pulse does not cease however, though the excretion be already performed: it is then, commonly, a sign that this excretion is not complete; this effect it has in common with the other critical pulses.

These

These different circumstances of the pectoral pulse seem to constitute three particular stages, which at the bottom differ only by the greater or less facility of the critical effort. These differences are easily enough comprehended and observable, so as to render it not necessary to enter into a more particular examination of them. The principal point is to ascertain the difference between the *pectoral* pulse and the other kinds of critical pulses.

If there be any with which it can be confounded, it is the *guttural*, and then the *naxal*; but such a mistake would be of no great consequence; it might be more dangerous if it were made with any of the *inferior* pulses; which cannot commonly happen, but through a want of attention in the observer.

The distinctive and invariable characteristics of the *pectoral simple*, and duly *manifested pulse*, are the following; it is *soft, full,*
dilated

dilated, it's pulsations are equal; there may be in each a kind of undulation, that is, the dilatating of the artery is performed in two times; but with an ease, softness and gentle force of oscillation, which forbid to confound this kind of pulse with the others.

We now come to maintain the above characteristics by those observations which have made them known; it will suffice in our observations where we shall have no other view but that of exposing the distinctive criteria of the *simple* pulse, to give only such details as will prove the existence of these simple pulses; nor can we, till after having treated of *complicated* pulses, enable the studious to lay down observations proper to judge of the advantages or the inconveniences of the different methods of practice.

OBSERVATION I.

A YOUNG girl of a naturally good constitution, who was drawing towards the eleventh day of a continued increasing fever, had been used to take the bark in small doses, preceded by remedies suitable to the disease; it was then that I was called to her, for the first time; having found the *pectoral pulse sufficiently declared*, I was of opinion that she should lay aside the use of the bark.

It was objected to me that she had neither cough, pains in the side, nor difficulty of breathing. The pulse being felt at several intervals, always appeared to me decisively *pectoral*, that is *soft*, FULL, frequent, redoubled, and fixed in that state; I persisted in my opinion, and predicted, that the patient would spit concocted matter,
and

and somewhat purulent, which would terminate the disease.*

Two days after, about the fourteenth day of the disease, the patient was seized with an extinction of voice, which continued three days, she coughed much and spit very copiously ; the disease was terminated about the twentieth.

OBSERVATION II.

IN a continued increasing fever in a young man of a pretty good constitution, many bleedings and purges which seemed properly applied, had produced no notable alteration ; the pulse had been *convulsive* and *uncritical* during the thirteen first days ; it became *developped* towards the fourteenth, and manifestly *pectoral*. The belly swelled a little ; evacuations produced by purgative apozems were suppressed.

† The reader will meet with several remarks in the series of this work concerning the times on which excretory discharges foretold by the pulse, will happen.

I declared that the malady would be terminated by a spitting perhaps purulent; three young physicians, witnesses of this prognostic, declared that they greatly doubted it, because there had been no cough, and that nothing indicated that the breast was affected. Three days passed without scarce any evacuation of the belly, and with little urine. The pulse continued *pectoral* though with frequent interruptions yet slight; towards the eighteenth day of the malady, there ensued a violent cough, the spitting was very abundant and somewhat alarming for many days; the malady was terminated, though imperfectly.

OBSERVATION III.

THE pulse being *full, soft, reduplicated, not too frequent*, and consequently *pectoral*, from the fourth day of a slight fever in a middle-aged person, I judged that the crisis would soon be performed by spitting; it came on pretty copiously the sixth day; it
was

was concocted though a little bloody; the pulse continued *pectoral* though often *complicated* with the *inferior*, 'till the tenth day; then it became a decided *inferior*, the bile flowed abundantly, and the patient recovered.

OBSERVATION IV.

IN a rheumatic defluxion with a fever, and a pretty severe cough, in an old man, the pulse shewed itself *convulsive* and uncritical for the four first days; then it became *developped*, *extended* itself, waxed soft, after grew *reduplicated* with an *evenness* and *remarkable fullness*, lastly turned out a *pectoral*. I foretold a spitting, which was very abundant, *mucous* and almost purulent, that was to begin from the fifth and sixth day, and continue till about the eleventh. The belly became costive during that time; the pulse ceased to be *pectoral*, the belly was disengaged, and the malady terminated.

OBSERVATION V.

IN a defluxion on the breast, with a spitting of blood on the fifth day, in a middle-aged man, and frightful symptoms on the sixth, between the seventh and eighth the pulse became *pectoral*; the spittle waxed afterwards very thick, abundant and easy to expectorate. The pulse ceased to be *pectoral*, the body became open, the evacuations were abundant, the spittle looked thick, but the pulse rising afresh, *developped* itself more and turned *pectoral*, which happened between the fourteenth and twentieth day, the spitting appeared again and the disease was terminated thereby.

One might relate many observations like this, made on subjects of different ages and complexions, by which might be seen, that such changes of the pulse have been the most fixed symptom; it is even essential to remark that this progress of the pulse has not only maintained itself in subjects of
different

different ages and constitutions, but even under different methods of treatment, when these methods have not been too active.

OBSERVATION VI.

THE pulse is very evidently *pectoral*, *full reduplicated*, *soft*, *even*, and *undulating with freedom* from the tenth to the eleventh day of a continued fever; the spitting that was judged to come on towards the fourteenth, actually appears; the spittle is *thick*, *concoced*, abundant, and terminates the disease.

OBSERVATION VII.

A WOMAN whose menstrual flux went very well, three days after lying in, had the *inferior* pulse, as is usual enough, †; the flooding stopped, the pulse became some time after *reduplicated in each pulsation*, *supple*, *full*, *even*, that is *pectoral*; the pa-

† See Chap. 12.

40 INQUIRIES *concerning the* PULSE.

tient spit from the eleventh to the fourteenth a prodigious quantity of glarous humours, somewhat purulent, and her breast remained a long time affected. The pulse had something *pectoral*, 'till the menses were re-established, then it became *inferior*, and the disease was terminated.

OBSERVATION VIII.

TWO patients who spit up corruption from an abscess in the lungs, have had continually, during the course of their illness, the pulse *reduplicated*, full, *pectoral*, but attended with a considerable *hardness*; here we plainly see that this hardness must have been the consequence of the state of irritation essential to such maladies. (See the chapters on the *complicated* pulses.)

OBSERVATION IX.

THE pectoral pulse is perceived for many days in grievous diseases, and in different constitutions and ages; it happens
towards

towards the eleventh or fourteenth day, that this pulse becomes *complicated* with the pulse of irritation. An ill-conditioned spitting comes on sometimes abundantly from the twentieth to the twenty fifth or thereabout ; but the patients die after this expectoration : unhappily these instances are not rare, and are alledged here to prove that spittings are almost always preceded by the *pectoral* pulse.

OBSERVATION X.

A CHILD who had been cut for the stone, and whose pulse was at first *convulsive*, as that is usual, had towards the sixth day of the operation, the pulse *dilated, reduplicated, and pectoral*. He spit the following days much thick matter, and was cured ; whereas an adult who had undergone the same operation, and whose pulse was become *pectoral*, but complicated with a very *convulsive* pulse, died spitting purulent matter.

OBSER-

OBSERVATION XI.

A SOLDIER received a thrust of a sword which wounded the right side of the lungs ; his pulse was, for some time, in the state of *irritation* ; it grew *soft*, afterwards ; became *full, reduplicated*, somewhat *undulatory* ; it was positively *pectoral*, and the spittle, which had been bloody in the beginning, was soon thick and concocted ; his pulse became again *convulsive*, the spitting was purulent, and the patient died about the thirtieth day.

OBSERVATION XII.

A DROPSICAL person, in whom the whole cellular texture was choaked up, without any marks of extravasation in any of the cavities, had a pulse *quick, small, frequent, irregular* : that is, *convulsive* : the patient felt a stitch in his side, and spit blood ; the pulse *develloped* itself, became *pectoral*, and was followed by the expectoration of
a great

a great quantity of mucous and purulent matter. The patient died a long time after of a dropfy in his breast.

OBSERVATION XIII.

ABOVE thirty patients had their pulses felt at different intervals, in presence of persons curious to verify the existence of the *pectoral* pulse. These patients were, for the most part, drawing towards the end of their malady, from the fourteenth to the twenty-fifth. Their pulses were quite *pectoral*, *full*, *smoothly soft*, *reduplicated with suppleness*, were *easy* or *free* in their movements; *constant* and *equal* in all their pulsations. Their spittle was full of a *fattish* matter, *concocted*, somewhat *purulent*. Most of those patients were costive.

The observations we have just read are sufficient to establish the existence and distinctive characteristics of the *pectoral* pulse. Hence we see how this pulse, when it is thoroughly manifest, is continually followed

44 INQUIRIES concerning the PULSE.

lowed by a discharge of spittle: but it is proper to remark, we must not expect to find this sort of observations to be alike in all their circumstances, with those which we have just related.

Besides, we cannot seize exactly on all the circumstances in the first trials that are made in this process of observing. It is only after having formed a habit that we attain the art of distinguishing happily the *simple* and *complicated* cases, as well as all the gradations and differences that shall be displayed in the course of this work.

C H A P. VII.

On the Pulse of the critical excretions of the Throat, or Simple Guttural.

THE *simple guttural* pulse, or that which indicates simply the excretions of the glands of the throat, is pretty rare; it is very common to find this pulse
complicated

complicated with the pulse of *irritation*, or combined with the *pectoral* or the *nazal*. Let us first examine the *simple guttural* pulse.

This pulse is *developped*, like the *pectoral*, which is an essential quality (as hath been already remarked) to every *critical* pulse ; it evidently has in it something of the disposition that characterizes the *superior* pulse ; that is to say, it is strong with a reduplication in each stroke ; it is less soft, less full, oftentimes more frequent than the *pectoral* pulse ; it seems to be intermediate between the *pectoral* pulse described in the preceding chapter, and the *nazal* which shall be described in the following : we must therefore, in order to know this pulse, have an exact idea of the *pectoral* and *nazal*, it has in it something of the nature of both these pulses, and is often so confounded with them, that it is difficult to distinguish it immediately ; but we shall see in the sequel that such a mistake would prove a matter of no great consequence.

How

How be it, the middle qualities of the *guttural* pulse between those of the *pectoral* and the *nazal*, may be naturally deduced from the position of the throat, which is between the nose and the lungs.

OBSERVATION XIV.

A MAN who had the lower jaw-bone very small and very backward, was subject to sore throats, and had suffered already at the age of thirty years, nine attacks attended with a fever, swellings in the almonds of the ears, &c. His pulse, at the beginning of one of these attacks, was very *brisk*, very *small*, *close*, *hard*, it grew *soft*, and developed itself a little, near the fourth day; the glands of the throat became then prodigiously swelled, and towards the sixth the pulse became *reduplicated*, somewhat like the *pectoral*, but it was less supple, less free; the reduplications of the artery were less equal, more hard, more dry, and the pulsations more quick than they usually are in the *pectoral* pulse.

pulse. The patient spit from the ninth to the twelfth, a prodigious quantity of mucous matter, somewhat purulent, which appeared evidently to be discharged from the glands of the throat; the disease was terminated by this evacuation.

OBSERVATION XV.

A PERSON who had a pretty considerable gottat†, with an habitual swelling of all the glands of the throat, was very subject, on every change of weather, to violent pains in that part. The pulse was in a state of *tension*, *dry*, and pretty *hard* in the beginning of the fever, which always accompanied these kinds of paroxysms, with an inflammation of all the glandulous substances at the back of the mouth.

When the fever was come to it's last stage, the patient evacuated a great quantity of *mucous*, *slimy*, and somewhat *purulent* matter. The glands of the throat subsided considerably, the pulse was constantly (during the
time

† An endemic protuberance among those abiding in the A'ps, attributed to the water they drink.

48 INQUIRIES concerning the PULSE.

time of this excretion, and even two or three days before) *dilated, quick, reduplicated*, with a kind of sharpness in the pulsations; the patient had himself remarked, that when the evacuations of the slimy matter were not performed freely, the heat and the fever encreased, and there ensued a bleeding at the nose, more or less abundant: the reason whereof will be seen in the following chapter.

OBSERVATION XVI.

ASINGLE woman of 40 was on the point of having her menses stopped, had a swelling of the throat, in which the amygdalæ were extremely affected; which discharged in the last stage of the malady many small fragments of a purulent kind of matter. The pulse was *quick, concentered, and frequent* in the beginning of the disease, it *dilated* itself much towards the sixth day; it became *reduplicated with a remarkable briskness*, and from that day to the eleventh, the excretions from the throat were very plentiful. There issued but a few drops

drops of blood from the nose, and a little mucous or concocted matter towards the termination of the disease.

OBSERVATION XVII.

AN angina was terminated by a suppuration in the amygdaline glands. The pulse became, towards the end of the malady, *dilated, frequent, reduplicated, and the second stroke of the artery in each of it's double pulsations, was remarkably more sharp than the first.*

A patient who had an abscess in the amygdalæ lanced two days before, has a *quick and convulsive* pulse; there appear evident *reduplications* in the *pulsations*; there flows much matter from the opening that has been made in the substance of the amygdalæ; this pulse continues 'till the end of the suppuration. We shall shew, as we are treating of the pulse proper for suppuration, what the qualities are which characterize it.

OBSERVATION XVIII.

A considerable swelling in one of the maxillary glands, and amygdalæ on the same side, was attended by a fever, with a pulse at first *convulsive*, and which, towards the seventh day of the disease, became *hard, full, slightly redoubled*, in proportion to a copious evacuation of *mucous* by the throat, and as the glands affected returned to their natural state.

OBSERVATION XIX.

A malignant putrid fever, towards the end of which, the pulse became *full, pretty hard, reduplicated with a remarkable quickness*, and *making on the finger* the impression of a sort of *sharp pulsation*; this pulse was followed by an abundant excretion of spittle, which seemed to proceed from the throat.

We have already said in the beginning of this chapter, that the *guttural simple* pulse is pretty rare, it is generally combined with the *pectoral* and *nasal* pulse; this pulse of the throat is also often *complicated* with the pulse of *irritation*. See Chap. 23, 24, &c.

C H A P. VIII.

*On the Pulse of the Excretions by the Nose,
or Simple Nasal.*

THE *simple nasal* pulse is that which indicates that the humours are carried to the head, principally towards the emunctories and the vessels of the nose, which are the ordinary passages for the excretions of the head.

Now as the evacuations of the nose are commonly as much pituitous, or *mucous*, as bloody, it often happens that the *nasal* pulse indicates a pituitous evacuation: besides,

52 INQUIRIES concerning the PULSE.

the excretion from the nose being the most common of all those of the head, it follows that the pulse of the nose, or *nasal*, might be taken for the pulse that indicates a flux of humors to the head.

This pulse has in all likelihood it's particular specieses, and each species hath it's characteristick signs, but we shall treat here only of the *simple nasal* pulse, as the most common.

It is proper to remark before hand, in regard to the *nasal* pulse, that though it be called *simple*, it is nevertheless almost always *complicated* with the pulse of *irritation*; and indeed it is rare that an excretion of the blood by the nostrils is truly *critical*, and terminates a disease; it is, for the most part, symptomatic, and decides but imperfectly.

However, Hippocrates says, " That they who have acute fevers, attended by an abundant and plentiful flux of blood at
the

the nose, always recover, and none die in such circumstances. The daughter of Lariffæa, who had a burning fever, was judged past all danger on the sixth day (though that day of itself is bad) thro' an abundant flux of blood from the nose, and was released from her fever. Methon was judged out of danger on the fifth day, thro' a flux of blood from the left nostril."

However that may be, these are the characteristics of the *nasal* pulse: *it is reduplicated as well as the guttular pulse, but it is more full, more hard, it has much more force and celerity.*

Solano calls this pulse *dicrotus*, after the antients: (a term that has been rendered in French by that of *rebondissant*, rebounding,) he looks upon this *dicrotus* pulse, as a certain indication of a critical hæmorrhage, by the nose; but observations made with more care, demonstrate that this pulse is not always followed by said hæmorrhage,

54 INQUIRIES *concerning the* PULSE.

and that when it supervenes, it is not always *critical*. The principal remarks to be made on this kind of pulse, are as follow.

First, if the pulse is *hard, full, rebounding briskly*, and if it maintains itself a certain time in this state, it will be almost always followed by a bleeding at the nose; especially if the patient does not take sometimes remedies capable of interrupting or preventing that effort. This kind of pulse is almost ever accompanied with a considerable degree of irritation, and cannot for that reason, be as often *critical* as Solano pretends.

Secondly, the pulse *less hard, less full, and rebounding with much less vehemence and constancy*, is a another kind of *nasal* pulse; which seems to be more *critical*, more *excretory* than the foregoing; it indicates an almost purulent, mucous, or pituitous excretion by the nostrils. This excretion is more natural, and appears to be more certainly *critical* than the bleeding at the
the

the nose. The following observations will shew that the *mucous* excretion by the nostrils, happens, for the most part, towards the end of diseases; whereas, the bleeding at the nose, happens often at the beginning: which proves that the first evacuation is *critical*, and that the other is scarce more than symptomatical.

Thirdly, when the critical or symptomatical evacuations indicated by the *nasal* pulse, cannot be executed, through a fault in the disposition of the organ, or a suitable determination to the part where the critical effort is, there ensue deliriums, drowiness, erisipelas on the face, bleeding at the ears, ophthalmies. These events are determined by so prompt a revolution, in the quick progress of the critical effort, that one can scarce observe the alterations which this revolution is about to produce in the characteristic of the *nasal* pulse. It has however been observed, that evacuations which the *nasal* pulse had indicated, being interrupted by causes adapted to produce an erisipela in the face, or determine the bleeding at the ears, the

56 INQUIRIES concerning the PULSE.

nasal pulse, during that time, did not lose it's ordinary characteristic ; whereas in the soporiferous affections that succeed thereupon, it ceases all at once to be *nasal*, and becomes *convulsive* and *uncritical*, as in the beginning of dangerous maladies, especially those of the nervous species, and in their fatal terminations. †

Let us now proceed to the observations that demonstrate the existence of those three principal kinds of the *nasal* pulse.

The simple nasal pulse, is commonly the forerunner of a bleeding at the nose.

OBSERVATION XX.

A young man of a robust constitution appearing to be pretty near in his usual good state of health, desired me to feel his pulse ; having found it to be an absolutely *nasal* one, I told him that, if he had been in a state of illness, I should believe him on the point of having a bleeding at the nose : he answered me with an air of asto-

† The Reader will find in Chap. 14 and 21, many things that have a relation to the present chapter.

nishment, that he had bled at the nose the evening before, and that very day.

OBSERVATION XXI.

A young man of a strong constitution, is subject, almost every month, to very plentiful bleedings at the nose; he feels this evacuation preparing two or three days before it happens, the head becomes heavy, the face reddens considerably. I have oftentimes felt his pulse in these circumstances, and at different times; I found it *full, hard, strong, rebounding with effort, almost at every pulsation*; it was manifestly *nasal*; the bleeding at the nose which it indicated, never failing to ensue; when it ceased, the pulse became *equal, supple*, retaining however always a kind of disposition towards the *rebounding*.

OBSERVATION XXII.

A GIRL of nineteen, who seems to have
a very good constitution, never has had her
E 5 menses,

58 INQUIRIES concerning the PULSE.

menfes, is fubject almoft every month to a copious bleeding at the nofe ; it is preceded by a general dejection and lownefs of fpirits, accompanied with a *violent rebounding* of the pulse, which always becomes *hard, full, frequent*, and more or lefs *reduplicated* in the different pulsations. Having found the pulse in this condition, I predicted, that in all likelihood there would enfue in three or four days, a bleeding at the nofe, which the girl was not fuprizd at, becaufe ſhe had been fubject to it ; in fact, the bleeding enfued on the third day. The girl defired to be informed, how ſhe might know the ſtate of the pulse that indicates this kind of hæmorrhage, and ſhe now underſtands it perfectly.

OBSERVATION XXIII.

IN a continued fever, without any remarkable excretion, the pulse is *frequent, cloſe, equal*, during the four firſt days : from the fourth to the fixth, the pulse becomes *dilated, full, and ſupple* ; towards the
ſeventh

seventh it is *hard, frequent, vigorous, rebounding, pretty near at every third pulsation*; I predicted the bleeding at the nose, on the ninth or eleventh day of the disease; the pulse is *rebounding* 'till the ninth; from that day to near the fourteenth, there ensues a bleeding at the nose, which appears at several intervals; towards the twentieth the pulse becomes almost natural, and the patient recovers.

OBSERVATION XXIV.

IN a continued increasing fever, without shivering: the pulse remained, notwithstanding the ordinary remedies, *undetermined, close, convulsive, frequent*, 'till about the eleventh day of the malady, then the pulse became *rebounding* at about every seventh or eighth pulsation; I predicted the bleeding at the nose, without daring to hazard to fix on the day; the rebounding was more manifest, and almost at every pulsation on the thirteenth; some drops of blood fell from the nose on the fourteenth.

The

60 INQUIRIES concerning the PULSE.

The *rebounding* was more determined on the fourteenth; on the sixteenth the hæmorrhage at the nose was more considerable; on the eighteenth the *rebounding* became *continual*, and the blood began to flow in small drops, without discontinuing, 'till the twentieth. Between the twentieth and twenty-fifth, the *rebounding* of the pulse appeared again, and was followed pretty near by the same kind of bleeding at the nose; from the twenty-fifth to the thirtieth, the pulse returned to it's natural state, and the patient appeared to be on the mending hand.

OBSERVATION XXV.

A young man of about twenty-five, who has no uvula, and the velum of whose palate is placed very far back, towards the orifices of the hinder nostrils, is very subject to a stoppage in the nose, and mucous excretions from it; the blood seems very often to crowd to the head: his pulse is naturally *frequent, full, pretty strong, with*
a ten-

INQUIRIES concerning the PULSE. 61

a tendency to rebounding. He was seized with a fever; the pulse soon became very *reduplicated, almost at every pulsation*; towards the fifth day it became *very hard*, and *very strong*, I predicted that the bleeding at the nose would soon ensue; it did appear in fact, between the sixth and seventh, and most copiously.

OBSERVATION XXVI.

IN an erysipelas on the face of a girl: the pulse was *hard, frequent, strong, rebounding*, almost at every pulsation. On the fourth day of the malady, the pulse being in this state, I presumed, that, notwithstanding the erysipelas, a bleeding at the nose would ensue; it did in fact, in great abundance, and several times between the ninth and eleventh; the patient began to recover on the thirteenth day, the erysipelas having run through all its different stages.

OBSER.

OBSERVATION XXVII.

A MAN fell from a high place : he suffered a considerable contusion in the head, and one side of his face was very much bruised : the pulse became three days after the fall, *bard, tensive, reduplicated* at almost every pulsation : it persisted in this state, notwithstanding three bleedings, two in the arm and one in the foot : there ensued toward the seventh day after his fall, a bleeding in the nose, which lasted many days, at several intervals : the accidents diminished in proportion, and the pulse returned to it's natural state. See Chap. 18, 21, 27.

The *simple nasal* pulse, which is not followed by any hæmorrhage, or excretion at the nose.

OBSERVATION XXVIII.

A GIRL of twenty was about the sixteenth day of a continued exacerbation fever :
the

the pulse became suddenly *pretty full and rebounding, almost at every pulsation*; it was however less hard, than when it is certainly followed by a bleeding at the nose; a difference which did not hinder me from predicting this bleeding: instead of the bleeding at the nose, there ensued between the seventeenth and eighteenth on all the face, a considerable erysipelas, which lasted many days.

OBSERVATION XXIX.

A painful numbness, that lasted four days, in a man of a very good constitution, had seized the upper and lower gums on the right side: the pulse was on the fourth day *brisk, frequent*, but moderately *rebounding*, and only at intervals. I expected a bleeding from the nose, which did not ensue; there appeared between the sixth and seventh a considerable tumor on the parotid gland, which came to a suppuration; the pulse continued *rebounding* during

ing the first days of the swelling of this gland.

OBSERVATION XXX.

A single woman of thirty-five, of a very good constitution, or at least apparently so, never had her menses but once. She had every month instead of that evacuation, a kind of general tumor in her face, which had the appearance of an erysipelas, and continued in that state, for two or three days: she had habitually a *developped* pulse, *strong*, and somewhat *reduplicated*; and, during the accident it became decisively the *rebounding nasal*, with a kind of *softness* which did not hinder me from suspecting that there would ensue a bleeding at the nose; this bleeding did not appear however but very rarely. The pulse returned to it's usual state after each paroxysm, and oftentimes the epidermis fell off in scales in the place where it had been very much affected.

OBSERVATION XXXI.

A young man, rather vigorous, having however a dark brown skin, had a continued fever, in which the pulse shewed itself a little *rebounding* about the fourth day; there escaped at the same time some drops of blood from the right nostril: the rebounding increased towards the fourteenth day: it indicated constantly a more considerable bleeding at the nose, but things fell out quite otherwise; the head was confused with a slight delirium about the eighteenth: two days after there ensued a lethargical drowsiness, to which succeeded an hemiplegy in the right side.

It must be observed, that this patient had been often let blood in the arm and in the foot, and that he had a year before an attack pretty much of the same nature, but much less considerable, which was happily terminated by a copious bleeding at the nose.

OBSERVATION XXXII.

A GIRL about twenty, of a good constitution and regular in her menses, complained of a slight head-ach, and had a small attack of a fever the day before her menses; she had been let blood in the arm, and fell ten hours after that operation into a kind of apoplexy. I was called in; I found her pulse a little *rebounding* but *small, frequent, very convulsive*; I ordered several bleedings in the foot, with little success; there came some drops of blood from her nose, but the patient died soon after. We found the base of the scull and the *sinuses* of the brain full of blood: the teguments of the head were filled with extravasated blood somewhat clotted.

OBSERVATION XXXIII.

A MAN of a strong constitution had a fit of passion so violent that four persons could scarce hold him, nay, he seemed to
be

be in a frenzy. After great agitations, he fell into a kind of drowsiness; his face, ears, and all the skin of his head, were very red; his pulse was extremely *brisk, frequent, concentered, rebounding almost at every pulsation*. This man slept some hours; he got up better, and had no bleeding at the nose. We shall find this event accounted for in the chapter concerning the time on which the pulse indicates critical evacuations.

OBSERVATION XXXIV.

A WOMAN of thirty, whose menses had been suppressed for three months, became subject to an almost habitual head-ach; she bled very little at the nose; she had been let blood in the foot, and two days afterwards had an attack of a convulsion very like an epilepsy, to which succeeded a slight attack of an apoplexy; the patient recovered of this attack, and remained in a state of astonishment and absence of mind, during which her pulse was

68 INQUIRIES concerning the PULSE.

rebounding almost at every pulsation, but very *convulsive*; she was let blood in the foot, and some time after she had a second attack, of which she died without having had any bleeding at the nose.

We often find the pulse *rebounding* after violent blows on the head and fractures of the skull: but bleedings at the nose do not always ensue: this *reduplicated* pulse is also felt sometimes in apoplexies, without a bleeding at the nose.

These observations prove, that the *rebounding* pulse is not always followed by a bleeding at the nose: but they prove also, that this pulse is certainly the effect of an extraordinary afflux of humours to the head, as Mr. Nihell has justly observed in his performance, which I have cited in the Preface.

However, it appears, that there is but very little difference between the bleeding at the nose and that of the ears, it is only by the bye that we mention the latter; we
feel

INQUIRIES concerning the PULSE. 69

feel it sometimes joined with a bleeding at the nose ; with this singularity, that the pulse on the side of that ear by which the evacuation was performed, was much more *strong* and more *reduplicated* than the other.*

The *nasal simple* pulse followed by mucous excretions.

THIS kind of the *simple nasal* pulse is not less rare than that which precedes the bleeding at the nose. We find it, as well as the other, almost ever *complicated* with the pulse of *irritation* †.

OBSERVATION XXXV.

A GIRL of fifteen, who has yet had no menses, is very subject to a stoppage in the nose ; there is even something periodical in this complaint ; it returns pretty nearly every month, and it ends constantly by an abundant excretion of mucous matter from

† See Chap. 31.

‡ See Chap. 17. 18. &c.

70 INQUIRIES *concerning the PULSE.*

the nostrils : the pulse is always nazal before and during the time of this excretion ; it is especially more *reduplicated* towards the end of the day ; the pulsations are considerably less hard than for the bleeding at the nose ; and more so than in the *critical* excretions of the breast.

OBSERVATION XXXVI.

THE pulse became *reduplicated* and very nazal towards the fourteenth day of a continued fever. I predicted a speedy bleeding at the nose. The third day the pulse was less *hard*, the *rebounding* less brisk ; there ensued, towards the twentieth, a kind of rheumatic defluxion, which fell equally upon the nose and eyes, with a very abundant excretion of phlegm, or purulent mucus by the nose : this mucus was only yellow and not tinged with blood, as it often happens ; and the disease terminated in this manner.

OBSERVATION XXXVII.

In an erisipelas on the face, the pulse was nazal towards the fourth day. There issued on the sixth three or four drops of blood from the nostrils on the most affected side, which was the right. Towards the twelfth and sixteenth, a great quantity of purulent mucus was discharged at the nose, with much ropy and pituitous humours, and the malady was happily terminated by that excretion.

OBSERVATION XXXVIII.

A MALIGNANT fever was accompanied with a considerable driness in the mouth, blackness on the tongue, a tension and swelling of the belly, an evident *re-bounding* of the pulse, which was, in other respects, *brisk, frequent, and very convulsive*. This malady seemed to be determined towards the twenty-fifth day, by a copious excretion of *mucous, purulent matter*, dis-

72 INQUIRIES *concerning the* PULSE.

charged by the nose. The pulse remained however in the same state ; the patient died about the thirtieth ; there was discharged thro' the nose, during the agony, and even after the decease, a prodigious quantity of the same mucous matter.

It is common enough to see putrid fevers terminated by an excretion from the nostrils; every body knows that, when they are dry, it is a bad sign, and that, when they begin to grow moist, as well as the tongue, the malady proceeds to it's last stage.

We often find in this sort of diseases, whatever has been their termination, that the pulse has been *rebounding* from the beginning without being followed by a bleeding at the nose ; whereas, at the end of the malady, the pulse having lost it's force and *hardness*, the nostrils discharge a *mucous* or purulent matter, the nazal pulse continues more or less *rebounding*, more or less *dilated* or *supple*, according as there intervenes more or less obstacle to the crisis.

OBSER-

OBSERVATION XXXIX.

A YOUNG man had the inside of the nose full of crusts or scabs, which increased at certain times: violent head-achs then ensued. The pulse was evidently *reduplicated*: the head-ach ceased upon the discharging of a great quantity of serous and mucous matter through the nose: this *mucous* flux proved as it were periodical. It is not rare to find instances of this sort.

OBSERVATION XL.

A YOUNG man of nineteen had a polypus in the nose; this polypus became painful periodically. The pulse was *rebounding* about the end of these fits of pain, and sometimes towards the beginning: such fits end by an abundantly mucous evacuation, sometimes lightly tinged with blood.

OBSER-

OBSERVATION XLI.

A MAN of forty was subject to transient rheumatisms, but very painful; he had from time to time, during the fit, sharp pains in the fundament. There ensued afterwards a stoppage at the nose, which was followed by an abundant discharge of pituitous matter, which terminated the paroxysms. This man appeared to have habitually a pulse tending to the *rebounding*, which became evident when the evacuation at the nose was determined.

OBSERVATION XLII.

A WOMAN who exposed herself too soon to the air after her third lying-in, was not regular in her menses, as she usually had been the second month; she was attacked with a violent kind of rheumatic pain towards the upper parts of the shoulders and the sternum; the pain extended by degrees to the ears and to the head, especially

cially towards the frontal sinuses. The fever was high, with increase, every evening; the pulse appeared *rebounding in some pulsations* towards the fourteenth day. The violence of the fever was diminished; the pulse was constantly *rebounding*, and *softish* towards the twentieth; from the twenty-fifth to the fortieth there was discharged at the nose, at different intervals, a great quantity of purulent *mucus*, mixed with much serous matter; the patient, however, remained subject to a considerable stoppage in the nose; her eyes were surcharged, and the parts behind the ears were very moist; the evacuation of the nostrils still continued; the pulse was constantly *rebounding*; it changed at length, became *inferior*, and the menses appearing terminated the disease.

OBSERVATION XLIII.

A MAN who had the os proprium of the nose putrefied, as well as the ethmoides, and a part of the bones of the palate, evacuated

76 INQUIRIES concerning the PULSE.

cuated from time to time, a great quantity of ichorous matter at the nose : his pulse was often *rebounding*.

The same thing happened to a man who had fractured the bones of his nose, but, though the evacuation of the matter was almost constant, yet the pulse was not always *rebounding*.

A man who had received a violent blow on the left temple, voids often by the nostril of that side, much purulent matter, and sometimes blood : he has very often, and almost habitually, the pulse *reduplicated* and *naxal*.

Now we see by all these observations, the comparison that is to be made in the *naxal* pulse, as in all other kinds of *critical* pulses, between the movements that characterize them and the nature of the disease. It appears, that in dangerous maladies, or such as befall persons of bad constitutions, we must not always count upon the

the

the events which seem to be anounced by the different *critical* pulses.

C H A P. IX.

Of that inferior Pulse, and of it's different kinds.

THE *inferior* pulse is that which precedes, and which indicates, by consequence, the *critical* evacuations that are performed by the organs situated below the diaphragma. This pulse is very palpable and easy to be known, it is not even very difficult to learn to distinguish it.

It's principal characteristic is to be irregular; that is to say, that the *pulsations* are *unequal among themselves, and have unequal intervals*. These intervals are sometimes so considerable, that they form real intermittences, according to the species of the inferior pulse, and according as this species is more or less declared. We feel also pretty often, a kind of
saliency

78 INQUIRIES concerning the PULSE.

saliency in the artery, which serves greatly to characterize the inferior pulse. This pulse is never as much developped, as supple, as equal, as the superior pulse.

Hence it happens, that for want of the habit of judging by, one may sometimes confound it with the *convulsive* pulse, or that of *irritation*, notwithstanding their having between them very evident differences, as shall be shewed in the examination of the convulsive pulse.

But, as there are many excretory organs in the abdomen, so has the *inferior* pulse, which may be called, *ventral* or *abdominal*, many differences, which could not have been reduced to distinct classes without an infinite number of observations. The difficulty has even been the greater, as it is not rare to find that the excretions are performed at the same time by many organs of the abdomen.

There is a kind of particular pulse for the excretory function or critical effort of each of the intestines of the abdomen. These particular kinds have, besides, their proper variations, according to the obstacles which the critical effort finds in it's progress ; for, as all the excretions which are performed by the viscera of the abdomen have each their proper mechanism, so are they preceded, and accompanied each of them by a particular species of pulse.

It is important to recollect, in the examination of these kinds of pulses, that the *developped, dilated* pulse, which always precedes, as has been already remarked, every kind of *critical* pulse, remains sometimes, for a certain space, in a kind of determination ; which ought to make us very circumspect in the judgment that we pass in the transition of the *developped*, to any other particular species of the *critical* pulse.

However,

However, all the *inferior* pulses, as well as the *superior*, are *simple* or *complicated*. The detail of the observations that verify the particular kinds of the *inferior* pulse, will sufficiently support and elucidate what has been advanced in this chapter. The same observations, which will determine the different kinds of this pulse, will also prove, that it has a particular and general character; which necessarily ranges it in the class of the inferior pulse: by this means, the existence of the *inferior* or *ventral* pulse will be demonstrated, as also how important it is to be fully and minutely acquainted with it.

C H A P. X.

Of the Pulse that indicates Vomiting, or the Simple Stomachal.

OF all the *simple inferior* pulses, that which is least *developped*, and which consequently approaches nearer to the pulse of irritation, is that which indicates or accompanies vomiting; consequently vomiting is not always to be looked upon as a true crisis.

In fact, the natural and critical vomiting that terminates a disease is very rare, especially, in the now usual practice of employing emetics, in the beginning of most diseases. The natural effort which determines this evacuation, hath always in the main, something symptomatical, even when one may pronounce by the abatement of the complaints, that it has seized on the cause of a malady.

Solano remarks, *that he has never observed a simple crisis by vomiting, without a diarrhoea*; however, we cannot deny, but there are sometimes natural vomitings, or those excited by some remedy, that ease the patient, so far as to seem to carry off the distemper.

The *stomachal* pulse is, as we have already said, *the least developped of all the critical pulses*, it is less unequal than all the other kinds of inferior pulses; the artery seems to stiffen and to quiver under the finger; it is often pretty salient, the pulsations are frequent and with intervals pretty equal.

The tension of the artery, joined to the intermission, appeared to Solano, *a certain sign of vomiting*, but the *intermission* indicates, in these circumstances, a pulse, which is not *simple*; as will be sufficiently elucidated in its proper place.

It is however proper to remark here that the *stomachal* pulse described by Solano, is in reality a *critical* pulse, *complicated* with the *convulsive* pulse; and we may assert, that the *critical* pulse of the stomach or truly *stomachal*, is that which we should feel, if it were possible to seize it, when the action of the stomach is determined towards the inferior passages, that is to say, towards the pilorus.

If it be true, that every intestine employs a fixed and determinate time, to perform it's functions, and that the time which the stomach takes up in performing the digestion, may be perceived and measured by the signs which accompany the different stages of the digestion; if the signs of these different stages can be distinguished; perhaps we may find out the means of fixing or describing the variations, which the natural action of the stomach probably exciteth in the pulse. The effect of emetics, of purges, and poisons, might contribute to fix exactly

84 INQUIRIES concerning the PULSE.

the signs, which would make these variations distinguishable.

All these will be elucidated, by the examination we shall make of the critical movements, foretold by the other kinds of *inferior* pulses : we shall here examine only the pulse that indicates vomiting.

OBSERVATION XLIV.

A YOUNG woman of twenty, irregular in her menses, threw up, for three months, every thing she took, except coffee, and the mineral soapy waters, called, *eaux bonnes* ; all sorts of meat and drink, were tried in vain. The interval that preceded the vomiting was accompanied with violent pains, paleness, and a kind of general tremor. The pulse which was naturally pretty *supple*, and *equal*, became *hard* and *frequent* ; the artery seemed in some manner to grow round, it became more *salient*, the pulsations were almost *equal* ; then one might perceive the tunics of the artery, agitated

tated by a kind of tremor. The vomiting was soon determined : and when the stomach had discharged itself, the pulse returned to its usual state ; was even more *full* sometimes, and more *developped* for some hours.

OBSERVATION XLV.

AN old soldier, who is in a marasmus, has thrown up every thing he takes, for five months, he has a slow fever ; the pulse is such as is felt generally in such cases, more *distinct* in the morning, than during the remainder of the day ; it is *frequent* and *small* ; it becomes very *convulsive*, in the irregular fits of pain, of which the seat is in the epigastric region. Some hours after his taking food, his pulse *rises sensibly*, the artery is *tremulous, hard, abrupt, and as it were rounded, the pulsations are unequal, pretty near in this order ; to three or four equal pulsations, succeeded two or three somewhat less strong, and then the stronger pulsations appear again ; the vomiting ensues,*

86 INQUIRIES *concerning the* PULSE.

and then the pulse resumes it's state of *irritation*, and fever : the patient dies emaciated to the last degree : the pylorus is found ossified, and the environs of the ossification in a state of suppuration.

OBSERVATION XLVI.

A PATIENT, who for some time found himself greatly oppressed, felt towards the epigastric region an uncommon oppression ; he threw up every thing he took. The pulse and disposition to vomiting, continued always in the same condition, notwithstanding many bleedings, emetics, and purges. The pulse was *concentred, small, frequent* ; two or three hours after his taking some drink, and not sparingly, the pulse *developed* itself and became *hard, there was a great tension in the artery, which seemed to move in a serpentine manner, under the finger ; the pulsations were very frequent, and not very unequal* ; then the patient discharged what he had taken, and the pulse resumed it's ordinary state. Towards the eighteenth day,

day, the pulse became *developped* and *full*, *vigorous*, *sensibly unequal*: there were some *intermittences*, it was *pretty supple*; a looseness ensued, and light purges followed by abundant evacuations, terminated the *malady* towards the twenty-fifth day.

OBSERVATION XLVII.

IN a continued increasing fever; the patient did not consult any person before the sixth day. The breast was affected, the spitting was tinged with blood, and a little concocted on the seventh. Three bleedings and gentle purges, did not divert the settled excretion of the spitting till towards the eleventh; at that time, the pulse, instead of *developping* itself more and more, grew *closer*: we perceived in it the *undulation* and instantaneous *reduplication*, which characterizes the *pectoral* pulse; but there appeared from time to time, *quick pulsations*, with a tremor, and a considerable *tension of the artery*; we counted at different intervals to the number of ten or twelve of this sort, without intermission. Between

88 INQUIRIES concerning the PULSE.

the fourteenth and sixteenth, the patient vomited naturally, and at several times a great quantity of serous and bilious matter.

The pulse, after that evacuation became exactly *pectoral*; towards the eighteenth, it had nothing in it precipitant or confined; and the malady was terminated by expectoration. It appeared, that the *contraction, smallness and stiffness of the pulse*, were produced by the fulness of the stomach, and were only the forerunners of the vomiting.

It is not rare to meet in acute as well as chronical diseases, *a particular contraction of the pulse, with a considerable tension of the artery, frequency and irregularity*; the pulse develops itself afterwards, and it is generally a good sign. This contraction is very often attended, if not with a vomiting, at least with reachings, anxiety, and with a kind of troublesome oppression, about the epigastric region; an oppression that never escapes

escapes the attention of patients, whose complaints perfectly explain to the physician, what the pulse hath already informed him of, that is to say, the uneasiness of the stomach, the efforts of that intestine, and the violent state in which it finds itself under the weight of the *glarous, bilious, and undigested* matter..

This *development* of the pulse, which physicians so greatly desire, often shews itself after bleeding, and after the action of emetics and purgatives, which does not the less prove, that the *hard, close, irregular, and frequent* pulse, indicates a great perturbation in the stomach, and ought to be taken for the stomachal pulse, which is the forerunner of a vomiting.

But the observations related in this chapter, evidently prove, that the stomach pulse is almost always *complicated*. What remains now to finish the history of this pulse, relates also to the *complicated* pulse, which must be consulted, as well as that of the
pulses

pulses which are caused by the taking of remedies.

C H A P. XI.

Of the pulse that indicates the critical evacuations of the Stomach, or the simple intestinal.

THE *simple intestinal* is that which indicates and generally accompanies the critical evacuations which are performed by the intestinal canal; this pulse subsists also sometimes, as well as the other critical pulses, after that the evacuations have been performed, which happens in consequence of the crisis not having been compleated during the first days.

The meaning of this definition cannot be well understood, but a by comparison with all that is to be elucidated in the course of
this

this performance ; what we may have to do here is to ascertain the species of the pulse that precedes the *critical* intestinal excretions that terminate anxieties and diseases. We shall examine elsewhere what relates to symptomatical excretions.

The nature or state of the *critical intestinal* pulse, is as follows: *it is hard, much more developed, than that which indicates vomiting ; it's pulsations are pretty strong, as it were rounded, and especially unequal, as well in their force, as in their intervals, which is a thing very difficult to distinguish, since it happens almost always, that after two or three pulsations pretty equal and high, there appear two or three which are less developed, more quick, more close, and as it were subintrant ; hence results a kind of saliency or explosion of the artery, more or less regular ; to the irregularities of this pulse are joined frequently very remarkable intermittences. It is never as full nor as developed as the superior pulse : it has not necessarily any fixed order in it's intermit-*
tences ;

tences ; it is on the contrary, by it's disorder that it makes itself distinguishable.

Solano has advanced that the pulse which precedes a looseness, is the intermitting pulse ; this Author has paid no attention but to the *intermittences*, and with so much the less reason, that it is not rare to observe *critical* loosenesses, which are preceded by and accompanied only with the intestinal pulse, as it has been just described, without it's having scarce any intermittences.

It is true, that the *intermittence* of the pulse is often followed by a looseness, but that is not always the case ; and the *intermittence* of the pulse joined to the *irregularities*, indicates more certainly this crisis ; it is then, to these irregularities that we must first attend, when we are to form a judgment of the critical pulse that indicates a looseness. However, we shall shew in it's proper place, how important it is to distinguish these irregularities, from those which are found in pulses *complicated* with
the

the pulse of *irritation*, for these are not always very critical ‡. We must never forget that the *excretory critical* pulses now in question, are always preceded by a clearly *developped* pulse.

OBSERVATION XLVIII.

A YOUNG man of a vigorous constitution, finding himself indisposed, prayed me to feel his pulse, which I did, and perceived it to be *frequent, strong, very unequal, salient at near every third pulsation; there were from time to time, some almost imperceptible pulsations, so far as to border on an intermission*, which induced me to pronounce, that some extraordinary revolution was going forward in his bowels; upon enquiry I learned, that from the evening before, he had been seized with a slight looseness, accompanied with a griping: said discharge lasted near three days, and went off by the force of nature alone.

‡ See Chap. 23, and the following,

A young man of a delicate constitution, applied to me to feel his pulse, which I perceived to be very *irregular, unequal, salient, intermittent, sometimes from four to four, sometimes from seven to seven pulsations*. I told him my opinion of his case, which was, that he would soon be seized with a diarrhæa, and be disordered in his bowels; upon which the youth replied, that he had already undergone the diarrhæa, which was stopped for about two days, he being accustomed to take rhubarb in small doses. However, I prognosticated to him that, notwithstanding, the looseness would return, which in fact it did the following day. This evacuation proved very copious, lasted several days, and could not be ascribed to the rhubarb, because, only a very small quantity had been taken. From what ever cause it came the pulse predicted a discharge by the anus.

OBSERVATION XLIX.

A GIRL between nineteen and twenty, was indisposed. Her pulse, upon being felt, appeared *full, unequal, brisk with some frequent intermittences, that irregularly intervened*. I prognosticated a diarrhæa to be near at hand, which she seemed very reluctant to believe, because she was naturally costive. Yet the following night the looseness made it's way, and she had eleven stools.

OBSERVATION L.

A PATIENT in a continued fever, had during the first nine days the pulse *very close*, and from that time somewhat variable, especially after taking any of the usual remedies. About the eleventh day, the pulse became *more develloped, high, unequal, salient with some intermittences, which were perceived sometimes after six, sometimes after nine, sometimes after ten pulsations*; and followed

lowed on about the fourteenth day of the distemper, by a plentiful, bilious evacuation, and of such a quality, as had not been before produced by either emetics or purgatives.

The crisis lasted three or four days, during which, I often felt the patient's pulse; it continued to beat in the same manner as before, excepting that from time to time, it would *quickly rise*, and be more SALIENT than usual. This *rising* or saliency was constantly followed by an evacuation: and thus matters went on to the twentieth day, on which the malady was superseded.

This observation on the extraordinary *saliency* of the pulse, predicting an evacuation to follow soon in the stage of a critical discharge, hath been often repeated.

OBSERVATION LI.

A YOUNG man of a very robust habit of body, was seized with a fever free
from

From any remarkable exacerbation, but accompanied with a violent head-ach. The pulse was *close* and *uncritical* until the fourth day; it then waxed *unequal*, the *pulsations* were sometimes *hard*, and sometimes *soft*; there seemed to be a kind of knot in the artery that rendered it more *salient* in some pulsations than in others; there appeared especially some very considerable intervals. I foretold bilious evacuations to ensue; they came on as I had predicted, between the sixth and ninth day; they relieved the head, which neither two bleedings, nor an emetic could effect. The pulse recovered it's suppleness, and grew *pretty near equal* towards the tenth day. The patient mended towards the fourteenth day, after taking a slight purgative, given in a time when the pulse was become *intestinal*.

OBSERVATION LII.

A PATIENT on the fifth day of a putrid fever, for which he had undergone three bleedings, and taken an emetic, exhibited

hibited an *intestinal* pulse to the tact. Two or three *strong* pulsations, and almost *equal*, were perceived. Then *the artery sprang up as it were suddenly, and seemed in that instant of time to roll in a manner under the finger*. The patient took, on the seventh day, two ounces of manna, two drachms of Epsom salt, which caused three and twenty very bilious evacuations, and the malady disappeared soon after.

An old man who had been quite dejected for two or three months, was seized with a fever that began with an extreme shuddering. His pulse, which was very *concentrated* on the first days, *developped* itself on the sixth. The day after it became *unequal, and as if tremulous, with some irregular intermittences*. The belly grumbled much. The patient was actuated by frequent but ineffectual desires of going to stool. In order to bring on the evacuations which the pulse indicated, the patient was ordered to take two ounces of *manna*, which excited a copious discharge. The
pulse

INQUIRIES concerning the PULSE. 99

pulse rose up afterwards, and became *pectoral* about the eleventh day; the crisis was effectuated by an expectoration.

OBSERVATION LIII.

THE pulse became *intestinal*, that is *irregular, rounded, intermittent, pretty near each fourth pulsation*, about the sixth day, of a continued fever. The patient who was young and of a good constitution, had a critical looseness which lasted three days. This crisis came on after a very slight purgative which he had taken on the seventh. It is to be observed, that the patient voided a *Tænia* or Tape-worm, near three yards long, the pulse returned to it's equal tenour about the twelfth day, and the disease was soon terminated.

OBSERVATION LIV.

A MAN of a vigorous habit of body, was seized with a fever, not of the mildest sort. From the second day the pulse was

100 INQUIRIES *concerning the Pulse.*

intermittent at every eighth pulsation, *irregular, and salient*; it *develloped itself and became more frequent* towards the ninth; on which day the patient had a violent flux by the anus, and from the tenth day of the malady the pulse was restored to it's natural state.

OBSERVATION LV.

CHOLIC-pains with the pulse extremely *irregular* and *intermittent* at every tenth or twelfth pulsation; these pains were carried off by plentiful evacuations, from the fourth to the seventh, and from the seventh to the eleventh day of the distemper.

OBSERVATION LVI.

AN old man was attacked with a defluxion on the breast, and a spitting of blood. The pulse continued convulsive and undetermined until about the twelfth day of the malady; in which time there were no evacuations, notwithstanding some gentle purgatives

INQUIRIES *concerning the* PULSE. 101

gatives had been taken. The pulse then *developped* itself, became *hard, unequal, irregular, salient*. Bilious evacuations were foretold, and appeared copiously on the fourteenth day. The pulse changed afterwards, and became pectoral. The evacuations of the belly stopped; but there followed an expectoration, which was painful and in a manner purulent, but put an end to the malady.

OBSERVATION LVII.

A YOUNG man of an athletic constitution, was afflicted with a continued fever; his body was all bloated, and he had such a swelling of the tongue, as forced it out of his mouth. The pulse was *hard, full, rebounding at almost every pulsation*. Between the sixth and tenth day, a bleeding at the nose appeared; during which time a costiveness prevailed, notwithstanding the daily use of purgative decoctions. On the eleventh the pulse changed almost suddenly, and began by moderately *developping itself*.

102 INQUIRIES concerning the PULSE.

It's pulsations were unequal, and moreover at very differing intervals; there were even some short intermittences. On the fourteenth day a violent looseness supervened, but did not carry off the distemper.

OBSERVATION LVIII.

A PATIENT in a continued fever, made his chief complaint of an intense pain on the right side from the groin to the false ribs. Although he had been let blood several times, and taken the oily potions, the pulse remained *concentrated, brisk, convulsive*; and the belly was very hard during the first five days of the distemper. On the sixth the pulse became *fuller, less equal, sometimes intermittent, there were also pulsations that seemed subintrant*. Between the tenth and eleventh, there supervened bilious evacuations and very plentiful, being encouraged by gentle purgatives, and the malady was thus terminated in a few days.

OBSERVATION LIX.

A WOMAN after child-birth, every thing having gone right, imprudently on the fourth day took some improper food: she was seized with a trembling in the night, her pulse was *brisk* and *tight* while she trembled; as soon as she got into a hot fit, it developed itself a little; on the following day it became *hard, irregular, intermittent*. The patient's belly swelled, she voided naturally on the sixth day, a prodigious quantity of bilious and milky matter. The pulse recovered it's usual tone the ninth day; and on the next the flux of the lochia was restored.

OBSERVATION LX.

A YOUNG man of a delicate complexion, who seemed notwithstanding to enjoy a good state of health, laboured under such an habitual looseness for three or four years, as to commonly go to stool three or four

104 INQUIRIES concerning the PULSE.

times each day. He himself had perceived that at the approach of an evacuation, his pulse was wont to beat high, and the heat of his body to encrease; and he used to feel a general revolution through all his frame. His pulse was habitually *tight*, or *close*, and somewhat *intestinal*; it *developped* itself from time to time, became *unequal*, salient; *some pulsations were very distant one from the other, and others hurried on so fast, as that one did not wait for the other.* This revolution of the pulse was always followed by an evacuation, after which the pulse recovered it's usual state.

Such, or kindred phenomena will almost ever occur in all critically feculent evacuations by the anus, as hath been already displayed in Observation L.

But there are maladies accompanied with a looseness, wherein the pulse is so convulsive that it can hardly yield to the determining power necessary to make it *intestinal*. Such evacuations are for the most part
sympto-

INQUIRIES concerning the PULSE. 105
symptomatic. See Chap. 23. and the following.

However, the opportunity of making observations similar to those here recited, are so common, that any practitioner may easily verify them in a short time. The proposition on which the subject of this chapter is founded, may be established in such a manner as to leave scarce any room for a doubt. Mr. *Nibel* has made excellent remarks on the *intermitting* pulse.

C H A P. XII.

On the pulse of the Menses, or the simple pulse of the Matrix.

THE Signs that distinguish this pulse from that of the critical looseness, do not appear at first very easy to be ascertained: *the irregularity in the pulsations, and the saliency of the artery*, being common to these two kinds

kinds of pulses ; we cannot consequently distinguish them, but by the aid of other signs.

This is the manner which has seemed to me the most proper to distinguish them : the *intermittence* does not shew itself near so frequently with the pulse that indicates the menses, as with that of the critical looseness. It is even rare to meet any intermittences in the pulse of the menses ; or if there be any, it is when they are joined with a looseness, and then the pulse is *complicated*, and not *simple*.

The *simple pulse of the matrix*, is in general *stronger* and *fuller* than that of the diarrhæa ; one might even say, more *sanguine*, since it is a fact, that the pulse which precedes and accompanies critical fluxes, is particularly in the beginnings much more *strong* and more *renitent*, than that of the other excretions.

Another remarkable difference between the *simple pulse of the matrix* and the *simple intestinal*

intestinal pulse, is a tendency to what characterises the pulse of the bleeding at the nose, which is generally observed in the pulse of the menses, and never in the *simple intestinal*, we may venture to assert, that this characteristic is common to hemorrhages of every kind.

The simple pulse of the matrix is commonly raised to an higher degree, more developped than in the natural state, it's pulsations are unequal; it is accompanied with reboundings, but to say the truth, less constant, less frequent, or at least, less remarkable than in the nasal pulse, yet sufficiently perceivable.

This pulse is much more easily discerned in young girls on the eve of having their menstrual discharge for the first time, because it often happens, that the revolution which effectuated the crisis, is accompanied with a febrile motion in the blood, that makes the modifications of the pulse much more palpable, unless that some other cause supervening to this effort, productive of the
febrile

febrile motion in the blood, render the pulse a *complicated* one.

Women drawing near to the term of their menstrual discharge, have most commonly at the time of it's appearing, a sort of fever which notifies a greater resistance in the matrix. Those liable to losses of blood are in the same dilemma, while the hemorrhage is preparing to force it's way.

There now occurs a very important remark to be made in regard to the *simple* pulse of the *matrix*, to wit, that practitioners are not to expect to find it the same in all women, as here described; for in some the revolution attendant on the menstrual discharge, is in a manner imperceptible; and the crisis is performed without any remarkable change in the pulse*.

In some women the pulse instead of *dilat-
ing* and *devellopping* itself, on the contrary, *contracts* and *narrows* itself at the approach

* See the last Chapter,

of the menstrual discharge; yet the *re-bounding* and *irregularity* of the pulsations are often perceptible notwithstanding it's *contraction*, more especially in women inclining to be fat: but all this is relative to the *complicated* pulse.

There is another article to be observed on feeling the pulse of females, to wit, the sudden shock that is sometimes impressed at the sight only of a physician, and that to such a degree, as to cause an immediate change, and stamp on it a characteristic quite opposite to that of it's actual disposition. This change doth sometimes render the pulse very like that of the menstrual discharge. On all such occasions which are very obvious to a discerning eye, we must use the precaution of feeling the pulse at several different times.

It is also necessary to observe, that the simple pulse of the matrix notifies only the term of the menses, which signifies that it is not always an easy matter to declare from the
state

110 INQUIRIES *concerning the* PULSE.

state of the pulse, whether the menses are, on the point of appearing, actually flowing, or have ceased not long since. A precision in this case is attainable only by great practice.

OBSERVATION LXI.

I WAS sent for to a lady, who informed me she greatly feared for her breast, and that she believed herself by so much the more disposed to spit corruption, as she had a stitch in her side, and a cold that had lasted for a long time; I answered her, after having felt her pulse, that I could not yet judge of the time that the spitting would come, especially as in that moment the pulse seemed to indicate the menses, (for it was *irregular, hard, tending to the nasal, frequent, and somewhat salient*). Your remark is very just, said this lady to me, I have been subject for some time to fluxes, which disquiet me quite otherwise than my breast, and I am actually now in that condition;

dition. Then she acknowledged the little stratagem she had made use of to impose on me.

Practitioners are often liable to such tricks being put upon them by many women near their terms; who, either having them actually, or just been freed from them, desire their Doctor to feel their pulses, under pretext of some other indisposition.

Practitioners must never forget, on these occasions, that there are some women in whom the menses don't produce the ordinary changes in the pulse; and if we enquire into the reason of these exceptions, we shall find, that the women who are in this case, have some of them habitual dispositions, and others, only accidental ones, which hinder the critical effort of the menses from influencing the pulse, as it usually does, and has been already remarked.

OBSERVATION LXII.

A GIRL of thirteen, as yet a stranger to the menses, had her pulse *feverish, full, hard, somewhat rebounding*, the pulsations *were very unequal, and sometimes almost sub-intrant*. I judged that the menses were on the point of appearing, that there was nothing to be ordered for her but to take from time to time a cup of the infusion of saffron, and wash her feet in warm water once a day; the menses appeared in fact on the fourth day; and after the menses, the pulse became as usual, *supple, equal, and well-conditioned*.

OBSERVATION LXIII.

SEVERAL girls afflicted with the green-sickness, having not as yet had their menses, or not having them properly, had some a *convulsive* pulse, others a very *irregular*, and others, one very *complicated*; they were not cured of their infirmity 'till by the assistance
of

of art, or that of nature, their pulse was rendered *developped, quick, unequal, disposed to the rebounding*, and continued a considerable time in that state; the menses appeared after this revolution of the pulse, more or less speedily, according to the more or less favourable dispositions of these young persons.

OBSERVATION LXIV.

A WOMAN of forty-one, who had not her menses for three months, was troubled with an extraordinary oppression during all that time; her pulse had been continually *small, brisk, convulsive*, and in a quite decided state of irritation; it began to develop itself, became rebounding at almost every pulsation, *at length it grew a little hard*, became very *irregular, very unequal*, and remained in that state for three or four days. This woman voided every day some drops of blood at the nose; I predicted however, that she would have her menses in a very short time; they appeared towards the

F

fourth

114 INQUIRIES *concerning the PULSE.*

fourth day so abundantly that one might say, it was a kind of flux; they continued for seven or eight days almost in the same abundance, and a little time before the end of the flux, the pulse became *supple*, pretty *equal*, and *almost not at all convulsive*.

OBSERVATION LXV.

A WOMAN subject to a considerable flux, has generally a *concentered* pulse, *small*, *frequent*, and the extremities of the body cold; she judges herself of the approaching return of the flux, by the heat that she feels in the extremities, and which she attributes to the touch of a fever; in fact, the pulse rises sensibly, *it's pulsations are very unequal*, *irregular*, *it has slight reboundings*, *pretty frequent*, the flux appears about twenty-four hours after.

OBSERVATION LXVI.

A SHIVERING ensued the second day after a woman's lying in, which seemed a
favourable

favourable one, and suspended all the evacuations, the pulse became very *convulsive*, the breasts sink in, the skin becomes dry and hard, I ordered her to be bled in the foot, the pulse rose after this operation, the belly was very much swelled and stretched, without being over painful; the pulse continues to *develop* itself, is *full, a little hard, irregular, slightly rebounding*; there was between the pulsations very *unequal* intervals; I predicted the return of the flux; it appeared between the sixth and seventh day, lasted but a short time, and all went on in the natural order.

OBSERVATION LXVII.

TWO young women, whose menses were very abundant, became pregnant; the first finding herself out of order in the second month of her pregnancy, she keeps her bed, the pulse which was *slow*, is *FULL, becomes somewhat frequent*; is *irregular*; there are some reboundings, or rather *fallencies* of the artery, which give, to use

I 2

that

116 INQUIRIES *concerning the* PULSE.

the expression, a sharp stroke. The patient was let blood in the arm, without any favourable effect; I predicted a miscarriage; which happened in fact the following night; it must be remarked, that this woman was then in the second period of her menses.

The other woman being three months gone with child, imagined she had overstrained herself. She felt a weariness over all her body; after having been let blood twice in the arm, the pulse grew stiff and *hard*, was *very unequal*, and *had very plain reboundings*; she miscarried six days after that pretended effort; she was also in the time corresponding to that wherein she usually had her menses.

We shall see in the 21st. Chapter, and in some others, many things relative to the present chapter.

C H A P. XIII.

Of the simple pulse of the Liver.

SOME historians relate, that the Chinese physicians, who are used to judge of maladies by the different states of the pulse, assure, that there is a *particular pulse for the liver* †; which has principally given us the idea of examining, whether there exists in reality, an *hepatic* pulse; without enquiring whether it is really such, as the Chinese physicians have described it; because, what they have advanced on that head does not deserve any attention.

I have observed, that persons in the jaundice have a particular pulse; it is indeed difficult to distinguish it at first; but it becomes more palpable when there begins to be any critical movement in the liver, and what is very remarkable is, that this particular character of the pulse, shews

† History of the Chinese.

118 INQUIRIES concerning the PULSE.

itself much more perceptible on the right side, than on the left.

This pulse is evidently *inferior* : after the *stomachal* there is no *critical* pulse so *concentrated* ; it has neither *hardness* nor *stiffness*, it is *unequal* and said *inequality* consists in this, that *two or three pulsations unequal in themselves succeed to two or three pulsations perfectly equal*, and which often seem natural.

This pulse is less *strong*, less *alert* than that of the matrix ; is also, less *brisk*, less *irregular*, than the intestinal ; one never finds it *rebounding*, excepting when it is *complicated* with some other species of a *critical* pulse, to which the rebounding is necessarily joined.

But these marks which exactly characterize the *hepatic* pulse, are not sufficient to distinguish it easily ; it is so often complicated with other kinds of *critical* pulses, principally with the *stomachal* and *intestinal*,
that

that the occasions of finding it with it's *simple* character, are very rare, excepting in the moment wherein the crisis of the liver is absolutely determined.

We must besides observe that independently of the jaundice, the liver is subject to many disorders which cannot fail of producing in the pulse changes bordering upon the *hepatic* character. When these disorders are not superior to the *critical* effort; the changes of the pulse follow pretty near in the same order as in the jaundice, that is to say, these changes are scarcely discernable in the beginnings, and are much more marked in proportion to the progress of the crisis.

The prognostic of a critical jaundice, which Solano says he had observed by the pulse, is very remarkable; “ This physician visited, with two or three celebrated practitioners at Madrid, a patient that had fallen into an obstinate melancholy, occasioned by the uneasiness he conceived

“ at being squint-eyed. Solano perceived
 “ the *sweating* pulse, which he called *inci-*
 “ *duus*, (and which is only a gradation of
 “ two or three pulsations, which gradually
 “ encreased,) it was after every twentieth
 “ diastole, with a considerable tension of
 “ the artery; this pulse returned again
 “ regularly between the seventh and eighth
 “ pulsation. Solano then said, that the
 “ crisis was at hand, and by the hardness
 “ of the pulse and some other circum-
 “ stances of the malady, he judged and
 “ prognosticated openly, that it would
 “ turn to a jaundice; the patient became
 “ quite yellow on the third and fourth
 “ day after the prognostic.”

Mr. Nihell remarks, “ That Solano
 “ knew well by the hardness of the pulse,
 “ that the crisis would not be a sweat; but
 “ he does not say, adds Mr. Nihell, what
 “ determined him to affirm that it would
 “ be a jaundice, excepting that as there
 “ happened three days before the crisis, a
 “ pain and tension in the hypocondria.
 “ Solano

“ Solano did not judge that the disease
 “ would be determined by a diarrhæa, vo-
 “ miting, &c. because the pulse indicated
 “ another species of crisis, and that the
 “ jaundice might be looked upon as a na-
 “ tural consequence of the then state of the
 “ patient.”

OBSERVATION LXVIII.

A HYPOCONDRIACAL person ren-
 ders red urine, and foul, his belly is some-
 what swelled, the patient is tormented
 with flatulencies, and loud rumblings; the
 pulse becomes *intestinal*, quite decided, the
 bile flows; he has copious evacuations till
 towards the sixth day, when the patient
 was strongly affected by an affair that gave
 him great vexation. The pulse becomes
 very *concentered*, it looses much of it's elasti-
 city, and is scarce any longer *unequal*; the
 urine becomes clear, the looseness stops,
 the griping is suspended, and towards the
 end of the seventh day, the patient becomes
 extremely yellow over all his body; the
 pulse

122 INQUIRIES *concerning the* PULSE.

pulse remains in the same state of constriction and weakness, 'till towards the eleventh day of the malady that it becomes *intestinal*, the bile flows abundantly afterwards, and with the assistance of some gentle purges, the malady terminates.

OBSERVATION LXIX.

A YOUNG man under uneasiness of mind, falls into an extraordinary dejection; he complains of a general perturbation in his bowels; his pulse is inferior without being determined to any excretion; in this state the patient eat much, which occasioned an indigestion that terminated by vomiting; the pulse which appeared *convulsive stomachal*, during the effort of the indigestion, the next day became more *calm*, more *equal*, better *regulated*, than it was before the vomiting; the belly was costive; the urine came in a small quantity; and two days after this indigestion, the patient became very yellow in a few hours.

The

The pulse indicated an embarrassment in the abdomen, before the indigestion; this disorder which should naturally have been followed by an evacuation, was not so; the indigestion suspended the effort of the bowels, it changed the pulse. If they had attended to this change, and judged that the matter which had not been evacuated by the ordinary passages, must become a cause of irritation, that must of necessity change the order of the action of the viscera; they might justly suspect that a jaundice would ensue.

OBSERVATION LXX.

IN a general dejection, disorder in the bowels, heaviness of the head, a fever in an old gouty person, the pulse is very *irregular* the two first days, it's pulsations *unequal*, but the pulse is not exactly *intestinal*; it's irregularity is more evident on the right side than on the left, though there was neither pain nor swelling on the side of
the

124 INQUIRIES concerning the PULSE.

the liver. I judged however, that it was greatly to be feared that some obstruction would be formed in that part; the patient was let blood in the arm, and put under a course of apozems of nitrous plants; which did not prevent the patient's becoming yellow all over on the fourth day. Towards the ninth the pulse developped itself, became much more *unequal*, and decidedly *intestinal*, and the malady was terminated by copious evacuations, occasioned by some gentle purgatives.

We see by this observation, that from the state of the right side pulse on the third day of the malady, one might have predicted a jaundice.

OBSERVATION LXXI.

A YOUNG man of fifteen, had from his infancy been subject to a decided obstruction of the spleen, he complained from time to time of very acute pains in all the left hypocondrium; the left hand pulse
was

was ordinarily, and especially in the paroxysms of this pain more *irregular*, more *brisk*, more *tensive*, than that of the right side.

It is to be presumed that the variations which the action of the spleen operates upon the pulse ought to be referred to the class of the pulses of *irritation*: however, if the spleen forms a particular reservoir for the blood, this reservoir occasions probably, whilst it is emptying or filling itself, changes in the pulse; these changes, when we shall be able to determine them justly, will serve to characterize the *simple* pulse of *the spleen*, which I have not had occasion to observe so far as to be able to assign it's distinctive criteria.

C H A P. XIV.

Of the simple pulse of the Hemorrhoids.

THIS species of pulse is somewhat a-kin to the superior pulse; particularly the *nasal*, and though it be here examined as *simple*, it is however very commonly complicated with the pulse of *irritation*, nay, perhaps, it is always so.

It is only by a series of observations made with the greatest attention, that we have been able to fix exactly the character of this kind of pulse, it is often, even very difficult to distinguish it from that of the *menfes*.

STAHL has remarked, that there is a great resemblance between the disposition of the hemorrhoidal vessels and the interior vessels of the nostrils, as well as between many affections to which these parts are subject; he has also remarked,
that

that there was a particular relation between them. In fact it is not rare to see the flux of one of these parts succeed and supply that of the other. This observation well examined, would be apt to raise doubts about many received notions in respect of the consequences drawn from the laws of the blood's circulation. See Chap. 21.

The state of irritation which appears almost inseparable from the hemorrhoidal pulse, is the reason that it is often a difficult matter to judge, whether an hemorrhoidal flux be critical or symptomatic. The remarks that Sthal and his Disciples have made on the hemorrhoidal flux, however useful they may be, have not however determined what will enable us to make this important distinction : let us proceed to the marks that characterize the hemorrhoidal pulse.

This pulse is unequal, as all other sorts of inferior pulses are, but it is an inequality that is peculiar to it ; it's pulsations do not at all resemble

128 INQUIRIES concerning the PULSE.

seem each other in their force, and still less in their intervals; it's pulsations, when they are least unequal, appear almost always to have something of the state of irritation. There are however from time to time some more dilated, and where the closeness is less sensible, it's most dilated pulsations are quickly followed by others, which are somewhat rebounding; this is pretty near the order that these changes generally observe.

To three or four pulsations somewhat concentrated, brisk, renitent, and almost equal, succeed two or three pulsations somewhat dilated, as it were rounded and less equal; the three or four following pulsations are rebounding; but these different pulsations have this in common, that we feel in them a kind of tremor pretty constant, and that they are more frequent and close than in other kinds of inferior pulses.

*One may perceive, to use that expression, a kind of depth of pulse, and this depth, joined to the tremor of the pulsations, seems to be the most distinctive character between the pulse of
the*

the menses and that of the hemorrhoids; this is less dilated than the former; that of the hemorrhoids is never intermitting no more than that of the menses; or if it be the looseness is joined to the hemorrhoids.

It is only by dint of great attention, and by combining the disposition, habitual state and the constitution of the subject under examination, that we must flatter ourselves to be able to distinguish by the state of the pulse, the swelling of the hemorrhoidal vessels, the tenesmus, or hemorrhoidal red, or *mucous* flux; for these are the complaints that are accompanied, and indicated by the hemorrhoidal pulse; whose different degrees cannot be very distinguishable without the assistance of this comparison.

OBSERVATION LXXII.

A WOMAN of near sixty, and naturally of a good constitution, had a convulsive pain in the epigastric region; the principal symptom was a kind of hicup almost conti-

K

nual

nual, followed in it's intervals by frequent reachings; the patient said, she felt in the regions of the breast and stomach, a very troublesome straightness. I was not called in 'till the twentieth day of the malady, to which they had already applied several sorts of remedies. I ordered her to be let blood in the arm, and I prescribed for the next day ipecacoanha, which had all the success that could be hoped for; the symptoms disappeared, but returned towards the thirtieth day, without being occasioned by any notable fault in the regimen; they abated naturally a little while after.

There remained in the place of these symptoms a general uneasiness, a singular disquiet in the mind of the patient, an extraordinary lowness of spirits without any determined fever. Every kind of remedy was made use of, sweetners, tonics, bitters, all kinds of salts, bleeding at the foot, &c. all to no purpose, the remedies even did only aggravate the disease, and they excited hot flatulencies which seemed to rise from the
 bowels

bowels and tend towards the head ; her feet were somewhat swelled, the urine sometimes foul with a red sediment, and sometimes clear, the belly always soft and not painful.

The pulse which had been until then, *dry, brisk, concenterd, somewhat frequent and equal, becomes UNEQUAL, BUT CLOSE in many of it's pulsations ; there were some that were dilated ; we observed in others a rebounding and a tremor of the artery ;* many days passed without any thing new happening. Determined by the perseverance of this kind of pulse, I suspected a disposition towards the hemorrhoidal flux, and I predicted it ; some days after, and near on the sixtieth from the first attack, the patient voided in the night three or four porringers of blood by the fundament ; from that instant she was freed from all her pains, and resumed her natural chearfulness.

OBSERVATION LXXIII.

IN a putrid malignant fever; the head was slightly affected, five bleedings, of which two were in the foot on the fifth day; the countenance very pale, the extremities cold, the pulse *irregular, and as it were empty, yet notwithstanding with a considerable tension, and a tremor on the side of the artery, and some slight reboundings.* Though the belly was neither stretched, swelled, nor painful; I presumed however, there was some obstruction and some singular tension in the vessels of the abdomen. I found they had administered that day a decoction of tamarinds, with two grains of tartar emetic; the patient died the night following, that is, on the beginning of the sixth day, voiding a great quantity of blood by the fundament.

OBSERVATION LXXIV.

A MAN about sixty, very much given to wine, was long sick of a quartan ague ; he fell into an extraordinary lowness of spirits, loss of appetite, oppression through the whole extent of the abdomen ; the pulse was *brisk, hard, deep*, for near three weeks ; it *developped* itself, a little after a long use of opening apozems and bolusses ; it became EULL, *hard, unequal, with some reboundings not very sensible* ; it remained many days in that condition ; the patient voided naturally below in the space of twenty-four hours, more than six pints of black matter, blood mixt with serum ; some time after he fell into a dropfy.

OBSERVATION LXXV.

A MELANCHOLY person subject to an hemorrhoidal flux, had generally the pulse *tense, brisk, pretty full, irregular*. During the five or six days that pre-

134 INQUIRIES *concerning the PULSE.*

ceded the evacuations, the pulse was DILATED sensibly; very *uneven, tremulous*, with *reboundings* unequal to each other; the hemorrhoidal fluxes ensued, they were sometimes very abundant, and as soon as they were over the pulse resumed it's ordinary state.

This person has perfectly learned how to know by his own pulse, the approaches of the hemorrhoidal flux.

OBSERVATION LXXVI.

IN a pretty severe cholic of another melancholy subject; the pulse is *obscure, frequent, closed*; afterwards it is developed a little, but there remains a considerable *tension in the artery*; *it's pulsations are unequal, there are some weak reboundings and intermittences, not very frequent.* The patient had been once let blood, and they administered a great quantity of oil of sweet almonds; he had bilious evacuations, and pretty considerable on the sixth day. The pulse became
a little.

a little more *soft*, and ceased to be *inter-mitting*, he had two days after a prodigious swelling of the hemorrhoidal vessels; then recourse was had to a bleeding, to no purpose, and partial baths to dissipate this swelling. The pulse was always in the same state; but still more *brisk* and more *convulsive* towards the evening, and every time that the pains encreased.

He voided at length by the fundament a great quantity of serous mucous and bloody matter; the hemorrhoidal vessels were relieved afterwards by degrees, and the pulse gradually resumed it's ordinary state.

OBSERVATION LXXVII.

A MELANCHOLY person addicted to his pleasures, who had used for near three months violent exercise pretended to be very much out of order, and took of his own accord, during many days the waters of Bannires hot, and that on account of their

136 INQUIRIES *concerning the* PULSE.

saline particles pass for every purgative; he acquired thereby an hemorrhoidal flux, pretty considerable; it was upon that occasion I was sent for; I found the pulse *irregular*, somewhat *rebounding*, *sometimes full*, and *sometimes close*; the usual remedies were administered to no purpose; the flux still persisted, and the patient died in a marasmus: the pulse which had always continued in the same state, though very much weakened, became three or four days before his death, more *close*, more *equal*, more *convulsive*.

OBSERVATION LXXVIII.

THE pulse is *frequent* and *close* in the three first days after the operation for a considerable fistula in ano, performed on a person of forty-five; towards the fourth day the pulse *dilates* itself, is *slightly rebounding*; *very tremulous*, *very irregular*, there ensues a flux from one dressing to another; the blood pierces through all the bandages; the rectum is filled with large clotts

INQUIRIES *concerning the* PULSE. 137

clotts of blood; the patient is very weak, the pulse becomes again *small, close, tense*; it afterwards resumes it's force, the supuration is formed, it continues a considerable time, and the patient recovers.

OBSERVATION LXXIX.

IN a green sickness in a young woman of twenty-five, who was uneasy, vapourish, of a dry constitution, the pulse seems every month to announce the approach of the menses; it is *uneven, slightly rebounding, hard, close, convulsive, tremulous*; instead of the menses, there appeared some days after an hemorrhoidal flux.

OBSERVATION LXXX.

A WOMAN of forty-seven, whose menses had ceased at forty-four, has oftentimes a pulse pretty like the pulse of the menses, it *rises*, grows *hard*, is *unequal*, very *close*, a *little rebounding*, the hemorrhoidal vessels swell; this swelling is
sometimes

138 INQUIRIES *concerning the PULSE.*

sometimes followed by an hemorrhoidal flux, but the menses never appear.

OBSERVATION LXXXI.

THE pulse is *feverish*, frequent and small, after a dysentery of long standing in an old infirm man, it *rises a little from time to time*, is a little *rebounding*, very *tremulous*; so deep sometimes, that it seems to escape the finger; its pulsations are very irregular, one while one pulsation presses close upon another; again, there are considerable intervals; there comes on a tenesmus which eludes the force of every remedy; he discharges nothing but mucous and bloody matter; the patient dies at length in a marasmus, having the extremities tumefied.

The body being open, they found in the rectum and in the greatest part of the colon, a considerable quantity of blackish tubercles, almost like mulberries, or spongy tufts, which upon squeezing were found full of blood.

OBSER-

OBSERVATION LXXXII.

I HAVE often observed the pulse *hard, irregular, slightly rebounding, unequal*, two or three months, before the hemorrhoidal flux was determined, and this in persons who were not as yet subject to it ; we shall often have occasion to make the same observation concening the pulse of the menses in girls, who not yet having had that evacuation, are pretty near the time of having them.

It seems, that the more the periods of critical evacuations are extended, the longer before hand are the signs of this evacuation perceptible, especially before the first critical determination. This holds also in the revolutions of chronical diseases. See Chap. 26. &c.

C H A P. XV.

On the simple pulse of the critical Excretions of Urine.

THE ordinary excretion of the *renal* urine, may be looked upon as a kind of filtration, which is performed without almost any remarkable effort of the kidneys *. The particular modification which the pulse receives by the *critical* action of an organ, is probably due only to the effort which this organ makes for the excretion; this modification cannot then have evident signs in the excretion of the kidneys, if their excretory action is not susceptible of such a change as makes it perceptible in the pulse.

Hippocrates says, that “ they whose hy-
 “ pocondria are raised with noise, if they
 “ happen to feel a pain in the kidneys, their

* See Recherches sur les glandes, &c.

“ body relaxes and becomes free, except
 “ the wind finds a vent below, or except
 “ there ensues a copious flux of urine §.”

This observation proves, that there is a great relation between the excretion performed by the intestines, and that which is done by the bladder ; it may support the opinion of such as think that the urine is formed partly by the moisture which abounds in the cavity of the abdomen, and which the bladder is continually absorbing. The observation of Hyppocrates proves, that the antecedent signs of the excretion of the intestines, may be compounded with those of the excretion of the urine.

“ Solano has not observed any simple
 “ crisis by the urine, without the complication of the diarrhæa, more or less
 “ considerable ; he has not been acquainted with any new signs of this crisis ; he
 “ advances only, that a softness of the artery joined to it's intermission is a certain sign of a crisis by urine, complicated
 “ cated

“ cated with a diarrhæa.” The pulse of the excretion of the urine must be then, according to the observations of Solano, always *complicated*, or *compounded*, but never *simple*.

This pulse when it is thoroughly critical, is found to have a great relation with the *intestinal* pulse, 'tis known that it's pulsations are *unequal*; but it appears *that in the very inequality, there is a sort of regularity* which the *intestinal* pulse has not: the *urinary* pulse has many pulsations *lesser* the one than the other, and which proceed *disminishing* 'till they are lost in a manner under the finger; it is in the same order that they return from time to time; the pulsations that are performed during these intervals are more *developped*, pretty equal, and somewhat *salient*.

Finally, it seems, what is very remarkable, that this pulse is the inverse of that of sweating, of which we shall treat in the following chapter: and seems to be indicated

cated by the small number of observations which we have been able to make on the special signs of the excretion of the urine.

OBSERVATION LXXXIII.

A MIDDLE aged man, of a very good constitution, fell into a lowness of spirits and state of melancholy, which made him ardently desire to go through a course of physick: he had already taken many things when I was called in; he desired me to visit him for three days, and to feel his pulse, without being willing to enter into any particular detail of his condition. Having examined his pulse with great attention, during the time stipulated, I found it was *irregular without intermit- tences, sometimes strong, sometimes weak, there were, from time to time five or six pulsations, gradually diminishing, and then the strong pulsations appeared with remarkable inequa- lities.*

The

The patient then informed me, that he was greatly tormented with wind; that he had a continual pain in his kidneys; and felt almost always a very troublesome oppression in his stomach.

I began, by putting him in a course of nitrous apozems. He was more agitated than usual for two or three nights successively, he had afterwards very abundant bilious evacuations; the patient took an ordinary purge, I put him afterwards under a daily course of some glasses of a decoction of Rhubarb and dried raisins.

The disorder in the bowels, that of the kidneys and the oppression of the stomach, as well as the state of the pulse subsisted for many days; at length, the urine became thick, and therewith very abundant, for three nights successively; the pulse resumed it's natural state, and the patient was delivered from his pains and uneasiness.

OBSERVATION LXXXIV.

A WOMAN of twenty-six, suspected of having considerable obstructions in the liver and in the matrix, fell into a dropſy; the pulse was constantly *close, concentered, convulſive*; at length it changed, without any manifeſt cauſe, it grew *high*, and became *decifively naſal*; which is not rarely obſerved in dropſies ſomewhat advanced; the patient had a bleeding at the noſe; an emetic was adminiſtered, according to indications declaredly deciſive; this emetic had all the ſucceſs that could be expected from it; the pulse remained pretty nearly in the ſame ſtate. We then adminiſtered three quarters of an ounce of purified nitre, to two glaſſes of ſpring-water, at an hour's diſtance from each other; an approved remedy in ſuch caſes. This remedy operated in the preſent caſe by urine only, which flowed very abundantly for three days, the ſize of the belly ſenſibly dimi-
I.
niſhed,

146 INQUIRIES concerning the PULSE.

nished, as well as the swelling of the inferior extremities.

The pulse before *superior*, and somewhat *convulsive*, was, during the operation of the nitre, *inferior*, *irregular*, *unequal*; there were pretty strong pulsations followed by five or six, which diminished proportionably to their distance from the first. The pulse changed on the fourth day; it became again *superior* and *nasal*; the bleeding at the nose appeared again; the urine was red and in small quantities; the swelling augmented and returned to it's first size.

OBSERVATION LXXXV.

A GIRL of fourteen, who has not yet had her menses, has every night since her early infancy, an incontinence of urine, she voids none in the day, and it is during her sleep that it flows abundantly; every kind of remedy has been tried to no purpose.

This

This girl has habitually the skin dry and cold, the pulse very *small, close, and pretty equal*; she has every evening a kind of shivering as she goes into her bed, she falls asleep, her pulse *develops* itself during her sleep, it becomes *unequal*; *some pulsations gradually diminish as they are remote from the first*; the excretion of the urine is performed towards midnight, without the girl's perceiving it; her pulse is the next morning as it was in the evening before, *small, close, convulsive*.

It is certain, that the *critical* evacuations of the belly, are often enough accompanied by a critical excretion of the urine; but it is not demonstrated, as Solano seems to believe, that this last excretion is always joined with a diarrhæa; it is at least as doubtful, that the characteristics of the pulse which precede the critical excretion of the urine, complicated with the diarrhæa, are reduced to *softness* and *intermittence*: which we may conclude from

148 INQUIRIES *concerning the* PULSE.

the observations already related. Mr. Nichell does not seem to be entirely of the opinion of Solano, in regard to the urinary pulse.

Practitioners know, that copious excretions of crude urine, always attended by a pulse somewhat *unequal, close, convulsive*, are scarcely ever any more than symptomatical; besides, the observation shews, that compleat crises by abundant urine, are extremely rare; the critical urinary pulse, called by the antients, *Perirrhaia*, was contested even among themselves.

The redundant excretion of urine, called *diabetes*, has been compared very properly with the diarrhæa; it must be added, to render the comparison more perfect, that this looseness with which the *diabetes* is comparable, is *symptomatic, colliquative, uncritical*; we must not therefore expect a thorough critical pulse in the *diabetes*.

C H A P. XVI.

Of the Pulse that indicates the critical Sweat.

IT is declared by both antient and modern authors, that the critical sweat is preceded by a pulse *full, supple, undulating*; this pulse is the only critical one described by Galen, whom we have been a long time contented to copy, without making any endeavours to go farther, and whom the moderns have too much neglected in respect to the history of the pulse.

Solano maintains, that the pulse that indicates the critical sweat, and which he names *inciduus*, is that “ when two pulsations, three or four at most, rise not only above the others, but also by degrees, each above the preceding, the second above the first, and so on to the fourth, inclusively; for Solano never observed more than four pulsations of

L. 3

“ this

150 INQUIRIES concerning the PULSE.

“ this sort successively.” Mr. Nihell has never observed the INCIDUUS pulse.

This *inciduus* pulse seems to be different from the *undulating*, with which the *simple pectoral* pulse seems to have the nearest relation.

One might hence infer, that the cases where the antients found the *undulating* pulse, were cases *complicated* with a double critical movement, which tended at the same time, to the excretion of spitting, and to that of sweating.

In fact, the complication of the *pectoral* pulse, with the *sweating* pulse, is not rare ; it is not rare also to find patients that spit and sweat abundantly at the same time : but the question here is only about the *simple* sweating pulse.

This pulse, when it is fully critical, is always *full, supple, developped, strong* ; it has so near a relation to the *superior* pulse,
that,

that, without a particular attention, or a long habit of judging, it is difficult not to confound them; it is so on the contrary to find it joined to the *inferior* pulse; and therefore the ancients placed a flushing in the face, which indicates the conflux of the humors towards the superior parts, among the most certain indications of sweat.

The *development* which is a characteristic of the pulse of the critical sweat, is proved even by the observations of SOLANO. He says, *he found the sweating pulse* SOFT; this *softness* is nothing else, but the *development* which, as has been said in it's place, is a sign particular to all the critical pulses.

Here follows the description of the critical sweating pulse. *When the pulse is* FULL, SUPPLE, DEVELOPPED, STRONG, and that to it's modifications there *is joined an inequality, in which some pulsations rise above the ordinary pulsations, and rise gradually until the last, which makes itself distinguished by a dilatation, and at the same time a suppleness more marked than in the*

152 INQUIRIES concerning the PULSE.

other pulsations, we must always expect a critical sweat.

It is said in this description, that there are *some pulsations which rise above the others, and gradually increase.* Solano has fixed the number of these pulsations thus graduated to four, and commonly one finds but two or three; a more modern author than Solano, and cited in the preface, says, he had observed more than five *gradual elevations*; upon which we must wait for the decision of observers.

We cannot too often repeat that the first condition of the critical pulse of sweat, is that of being *developped, dilated*, and especially pretty *equal* in the *intervals* of the *pulsations*; for there are *complicated pulses*, in which two or three pulsations are more strong than the ordinary, and where it seems that there is some kind of gradation, without this pulse's being followed by sweat; but in this case there is a *stiffness*, a *tension*, a considerable *dryness* of the artery as well

as

as a *saliency* and an *inequality* in the intervals of the pulsations, which are not found in the *simple* pulse of the critical sweat.

There are not many sweats very critical ; they are, for the most part, only symptomatical. Hippocrates has pronounced that “ sudden and violent sweats, even those
 “ which gush out on the critical days,
 “ are dangerous, as well as those that
 “ come from the forehead in drops, and
 “ when clotted serosities are very cold and
 “ abundant ; for such sweats must necessarily be the effect of great violence, by
 “ excessive labour, and by a long expression*.” We always find in those cases, the pulse of the sweat *complicated* with that of *irritation*.

As to symptomatical sweats, “ those that
 “ are always flowing, says Hippocrates
 “ again, give us room to judge, that the
 “ body abounds in humours, and that

* Aphor. 4. Sect. 8.

154 INQUIRIES concerning the PULSE.

“ evacuation is necessary* ; the sweat that
 “ comes upon a person in a fever without
 “ putting an end to the distemper, is a
 “ bad symptom, because it indicates that
 “ the malady will be of long continuance † ;
 “ one must not look in these sweats for the
 “ signs of the critical sweats.”

Solano pretends, that he could not find the *inciduous* pulse in the sweats that appear at the end of the fits of an intermitting fever: this rule is not general, for the *sweating* pulse is sometimes found in the last fits of a fever, that is to say, at the end of the malady.

Critical sweats appear also in acute and chronical diseases, about the end, or at least, on the days marked by the signs of a good concoction || : they are preceded by a kind of a trembling and unusual suppression of urine §, which, according to Avicenna,

* Aphor. 61. Sect. 4.

† Aphor. 56. Sect. 4.

|| Hypp. Aphor. 36. Sect. 4. § Idem Epid. Sect. 1. lib. 6.

is on that occasion, *very red, and inflamed*: these kinds of sweats never fail to be preceded by and even accompanied with their particular critical pulse.

We find pretty near the same pulse in the favourable eruption of the measles and small-pox, excepting that it has not altogether the same degree of *softness*; for tho' the pulse is ordinarily *uncritical* in the beginning of these disorders, it becomes *open* in a short time, whilst they are of the kindly sort: it is very usual then to find the sweating pulse which indicates the conflux of the humours towards the surface of the skin; however, it has always a decided tendency to the *rebounding*, which changes, to use that expression, to an undulation, in case of a favourable eruption, which shews perfectly the relation between the sweating pulse and the *superior*, with which it is often joined.

Many celebrated authors have advanced, that sometimes “ the tonical vital move-
“ ment

156 INQUIRIES *concerning the* PULSE.

“ ment seems to be determined from the
“ internal parts of the body to the external,
“ and reciprocally from the external to the
“ internal* ;” it is from this change that
we are to deduce the trembling and
contraction which, according to Hippo-
crates, precede the sweat ; the heat that
ensues after the *shivering*, is a proof that
the bowels have disengaged themselves of
the superabundance of humours with which
they were charged during the contraction.

It is probably by the help of these prin-
ciples, that we may come to discover the
particular causes of the different alterations
of the pulse in all critical excretions.

OBSERVATION LXXXVI.

A SINGLE woman of a great age, has
been subject to sweat every night, for above
ten years : she has so great a disposition to

* Hofman Medicin. ration. T. 3. Sect 1. Chap. 6. See
Stahl, theſe des reaux d'Aquitaines, &c.

sweat,

sweat, that if she draws near the fire, or that she is covered in her bed, there immediately ensues an abundant sweat; the bare sight of the sun, one ray, even that falls on her hand, or the sight of a candle when the chamber door is shut, instantly occasion a sweat; she is obliged to be always in the dark, and very thinly covered in her bed. Her pulse is usually *full, strong, pretty equal*; when ever she feels an augmentation of heat, which she calls *the return of her sweat*, her pulse becomes *more full, more supple, more unequal*, that is, *it has two pulsations much higher than the others*; the oftner these pulsations return, the more imminent and copious is the sweat.

Even as the intestines are when in a state of looseness, so is the skin of this woman always in a ready disposition to sweat, it being *supple and unctuous*; the pulse is more or less *soft, full, dilated*; the urine comes in a small quantity and voided with difficulty; the body is very hard bound, which indicates that
 this

158 INQUIRIES *concerning the PULSE.*

this sweat participates much of the nature of the critical sweat.

OBSERVATION LXXXVII.

ABUNDANT sweats every night, for a very long time, in a man of forty-five, he believes he has observed, that every second night his sweat is very redundant. He is often seized, as he enters his bed with a kind of shivering and quaking over all his body; this shivering denotes, that the sweat will be very copious.

His pulse is habitually pretty much *dilated, equal, slow, however the artery seems to have some tension, and this tension ceases at the approaching of the sweat; then the pulse becomes more full, more frequent: there are felt very often pulsations higher than the others, there are sometimes two, sometimes three, that rise by gradations.* This state of the pulse lasts until the decline of the sweat.

When

When the sweat is less than usual, the pulse is not near so much *dilated*, nor so *supple*, and there are fewer pulsations *higher* than the others.

OBSERVATION LXXXVIII.

A MAN of twenty-six, and of a seeming good constitution, is seized with a continued fever ; his pulse is *rebounding at almost every pulsation*, from the first day, and on that very day he was thrice let blood in the arm ; that did not hinder his bleeding at the nose in the evening ; the next day his face is very red, his pulse very *full*, less *hard*, and *not rebounding* ; he is let blood in the foot. Towards the evening of the fourth day the patient is in great agitation and very uneasy, he finds flushings of heat mounting towards his head.

The pulse is *full, vigorous, supple*. We feel pulsations much more *full*, more soft *one than the other*, and the next day, *viz.* at the entrance of the fifth day, the patient
is

160 INQUIRIES *concerning the* PULSE.

is in a sweat ; the pulse is still more *full*, more *soft*, it has oftentimes *high* pulsations : the sweat lasts two days successively ; it is universal, very unctuous, foetid ; the pulse continues in the same state, during that time, the urine does not come in any considerable quantity, the body is not open until towards the end of the seventh day, then the pulse becomes *intestinal* ; on the eighth a gentle purge is administered with good success, and the patient recovers.

OBSERVATION LXXXIX.

A CONTINUED fever with paroxysms ; the pulse is more or less *convulsive*, *uncritical*, for the twelve first days, there are from time to time, during that interval, some slight *reboundings* ; the patient bleeds at the nose in small quantities and at several intervals ; the pulse *develops* itself towards the fourteenth day, it becomes *equal*, *soft* ; some pulsations more *high* are discovered. These pulsations are more frequent from the fifteenth to the sixteenth ; I predicted
the

the sweat on the eighteenth or twentieth ; it appeared in fact, and continued until towards the twenty-first, when the pulse became *intestinal* ; some slight purges were administered on the following days, and on the twenty-fifth the malady was terminated.

OBSERVATION XC.

A DEFLUXION on the breast with the pulse of *irritation* thoroughly decided, and spitting of blood on the fourth day : the pulse *develops* itself on the sixth, it grows *extended* and *soft*, it has pulsations *higher* *the one and the other*, which seemed to me at first to have something of the *re-duplicating* pulse. I predicted a spitting, instead of which a sweating declares itself on the seventh ; it is very abundant until the ninth : the disease is terminated on the eleventh by evacuations of the abdomen preceded by the pulse, which indicates them, and which were assisted by a purge applied upon the indication of that pulse.

I had not remarked thro' want of sufficient attention, when I predicted the crisis by spitting, that the pulse was more turned to sweating than expectoration, which I was convinced of whilst the sweating continued; for the pulse *was always full, soft, and had frequently pulsations higher than the others, which were one while two by two, and again three by three.*

OBSERVATION XCI.

MANY persons in the measles whose pulse in the time of eruption was *soft, full, with some pulsations higher than others*: the patients sweat abundantly in proportion as the eruption grows red and spreads wider.

The pulse appeared less *supple*, less *full*, less *dilated* in the measles, where the cough has been obstinate, it was besides more *brisk*, more *close*, *irregular*, *salient*, in cases where there was a considerable looseness:
 finally,

finally, in cases where there was a bleeding at the nose, the pulse was *rebounding*; and there have been some of the malignant or obstinate sort, where we distinguished the *nasal* pulse, the *intestinal with intermittences*, and the *sweating pulse* which followed each other pretty close.

In cases where it has happened that the crisis was principally performed by expectoration, it has not failed of being indicated by the *simple or complicated pectoral pulse*.

We have observed the same variations and complications of the pulse in the kindly sorts of the small pox, where it is very usual to find it, after the eruption in a state of *suppleness* and equality, until towards the eleventh or fourteenth day; then the pulse becomes of itself *nasal* or *guttural*, it is followed by mucous and even bloody excretions at the nose, or else it becomes *irregular* and *intestinal*, in which case the evacuations of the belly terminate the disease.

A SMALL pox of the confluent sort in which the eruption was performed difficultly ; the head was seized towards the seventh day ; the pulse became very *convulsive* ; the patient was blooded in the foot, the pulse remained *close*, and the head equally embarrassed ; they applied vesicatories to the legs, and took it into their heads at the same time, to put on the patient another person's shirt, whose pock was in full supuration. The shirt which had imbibed the corruption in many places stuck to the skin of the patient ; on the ninth day the vesicatories having taken proper hold, the pulse *developped* itself, and shortly became *rebounding* ; there came on that very evening a bleeding at the nose.

The next day the pulse was no longer *rebounding*, it remained however somewhat *dilated*, it was unequal with some very *high* pulsations, but it was very *slow* and extremely *soft*. We had recourse to cordial
 potions,

potions, the skin seemed to grow supple and moist, the head remained still equally embarrassed, towards the evening of the eleventh day the patient had a violent shivering, and died the next day in the sweating fit.

THIS observation shews, that even in the most disastrous events, the pulse is sometimes followed by the species of the crisis which it indicates.

A patient extremely weak, said the antients, may die before the end of the crisis, and such a case if it happens, adds Solano, cannot alter the truth of the observations on the pulse.

C H A P. XVI.

On the critical, combined, or compound Pulse.

THE *compound* and complicated pulses are more ordinary than the *simple* pulses, but they are not so easy to be rightly characterized; there happen in their progress frequent variations which seem at first to confound the species of the combined pulses.

A compound pulse is that which results from the mixture or the union of two or many *simple* pulses which alternately succeed each other. Galen had already spoke of compound pulses; but he has not considered them in the same light that they are handled in this treatise.

The particular revolutions of each organ make each a particular alteration in the pulse; the successive revolution of many organs,

organs, ought therefore to give the pulse modifications, whereby one may discover the change due to the action of each organ affected. This reflection will be of some service for the more perfect understanding of the observations that shall be related.

Thus we shall see in the sequel, that the *nasal* pulse and the *guttural*, are often joined in the same malady; the *nasal* and *guttural* go also very commonly together; the *pectoral* also, and the *sweating pulse* are very often united: the *pectoral* and *intestinal*, however opposite they may appear to be, form a *combination* which is usual enough; in short, we shall find few examples of all these *simple* pulses joined together at the same time, that is, in the same *reduplication*.

There are some kinds of *compounded* pulses wherein a *simple* pulse seems constantly superior to all the rest; it is even this superiority of one species of pulse which as-

fures the happy event of the crisis ; since it is very rare that an excretion which is performed by many organs, is thoroughly compleat and decisive *.

We examine here only the different combinations of *critical* pulses, which excludes the presence of the *convulsive* pulse, or of the pulse of *irritation*, which is *uncritical* ; and which, as shall be seen in it's proper place, is often times *complicated* with the *critical* pulses.

“ Sometimes, whilst the first sign observed in the pulse subsists, a second, and even a third ensues, and they persist together ; then the two or three crises signified thereby ensue.”

Mr. Nihell relates this vague and detached assertion of Solano's, without entering into any particular discussion, and even without saying what he thinks of it.

* See Chap. 22.

We shall see in the sequel, that the history of the *combining*, and the *complication* of the pulse, is what is most important relative to this object: the matter is even so difficult, so extensive, and so new, that we cannot doubt but the observers will add thereto a great number of discoveries.

C H A P. XVIII.

Of the combination of superior Pulses.

EVERY species of *superior* pulses are found sometimes together in the same distemper; and even in one reduplication succeeding each other at more or less distant intervals.

One may presume after many observations, that the mixture or union of all these pulses, indicates, that in certain maladies, the body of the cellular and vascular system which lies between the diaphragma and the head,

head, is generally affected ; it would result from thence, that the critical movements may be successively determined in the different portions of this system, which gives room to believe, in reasoning only upon appearances, that the malady passes from one part to another.

Let us now proceed to the manner in which the *superior* pulses are most usually combined in the slight or less grievous maladies : a pulse *compounded* of the *pectoral* and NASAL, will be that whereof some pulsations shall have the *rebounding* and *softness* which is proper to the *pectoral*, and others the *rebounding* and *stiffness* proper to the *nasal*: whether there are many pulsations proper to the *pectoral* pulse with a few of such as are proper to the *nasal*, or whether these particular pulsations are repeated more or less frequently, the pulse is not less really a *compounded* one. It will only follow that one of these Excretions will be more decided or abundant than the other.

It may also happen that the pulse will continue *pectoral*, for instance the space of
twenty

twenty four hours or much less, and that it afterwards may become nasal in the same proportion. These kinds of pulses are not less proper in the class of the compounded.

These compounded pulses must be subject to many variations according to the disposition of the subject, the nature of the disease and the manner of treating it. The following observations will furnish many examples of these *combinations*.

OBSERVATION XCII.

AN erisipelas appeared on the face with a continued fever, in a young man of a good constitution. Notwithstanding his being twice let blood in the foot, on the second and third day, the pulse becomes nasal towards the fourth; at the same time a bleeding at the nose, declares itself, which lasts till towards the sixth; then was found in the pulse some disposition to become *pectoral*, the *pulsations are more full, the reboundings are more soft*; the patient coughs
between

between the seventh and tenth, and during that time he throws up from the breast and throat, thick phlegm, and voids blood from the nose. We must not omit that they administered an emetic on the seventh, which, as hath been observed did not hinder the expectoration ; it would not have been so probably from the effect of a purge that had been somewhat strong.

THE *Pectoral* pulse becomes predominant from the tenth, the *nasal* only shews itself from time to time, pretty near about every eighth pulsation, the latter becomes frequent towards the thirteenth, the *pectoral* in less apparent ; the bleeding at the nose increases, it ceases at length about the twentieth, then the pulse remains a fixed *Pectoral*, which continues many days, with the *Guttural* ; there issues from the breast, throat, and nose a prodigious quantity of matter somewhat purulent, and the disease is terminated by means of some gentle purges indicated by the changes of the pulse.

OBSERVATION XCIII.

A Defluxion on the breast, pain in the side, spitting of blood in a man of a dry complexion and advanced age. The pulse is *tense, brisk convulsive* the first days ; he was five times let blood in the arm during that time ; the pulse is developped ; towards the sixth it becomes *pectoral*, and the seventh the spittle is concocted and comes freely ; they administer on that day a purge on account of a violent paroxysm which he had on the evening before ; the pulse grows *close* and *stiff* ; the spitting is diminished ; the pulse becomes *rebounding* towards the ninth, and between the ninth and eleventh it is *pectoral*, nearly in six or eight pulsations, and *nasal* in three or four: a slight bleeding at the nose ensues ; on the twelfth the pain in the side increases ; there is much heat and dryness in the throat, the spitting is almost suppressed, the pulse becomes at length quite *pectoral* towards the fourteenth, the spittle is concocted and comes

174 INQUIRIES *concerning the* PULSE.

comes from the throat and breast in great abundance: the malady was happily terminated towards the twentieth.

It must be observed that since the purgative they had for the most part kept the patient to the custom of taking an oily potion with kermes, which was followed by inconsiderable evacuations.

OBSERVATION XCIV.

A MALIGNANT fever in a bilious young man of a lively and dry complexion, the pulse is the first twenty days almost always *convulsive*; during this interval the patient was nine times let blood in the arm or the foot, and they administered, with little success, a great deal of emetics in what they judged to be the most proper form.

The pulse appeared sometimes *nasal*, but a little developeed, there was a slight bleeding at the nose, and a slight inflammation in the throat: towards the twentieth
and

and following days, there was discharged at the nose, and at the back of the nostrils some putriform matter ; the pulse became *pectoral* towards the twenty fifth, with a cough and hoarseness ; and from the twenty fifth to the thirtieth the patient discharged an abundant quantity of phlegm almost putrid ; the malady was but imperfectly terminated.

OBSERVATION XCV.

A SORE throat with a slight fever and a considerable swelling of the Amygdalæ, in a man of an advanced age, on the fourth day the pulse is one while *nasal* and another while *pectoral* ; it has four or five pulsations which have the *stiffness* and the *rebounding* proper to the *nasal* pulse, others are *soft*, *supple*, *full*, as in the *pectoral* ; there is a slight bleeding at the nose during the course of the disease ; great quantities of serosity and mucous matter are likewise discharged at the nose ; the phlegm that comes from the throat is almost purulent ; the pulse becomes more *decisively pectoral*, it is soon followed by an abundant and well conditioned

176 INQUIRIES *concerning the* PULSE.

ditioned expectoration, the malady was terminated by almost continual excretions of the nose throat and breast.

This patient had been let blood five times in the beginning of the malady ; and afterwards thrice purged with gentle Physick whose effect had been pretty moderate ; the changes that these purges produced in the pulse were inconsiderable and of short duration.

See the 23d Chapter concerning remedies which scarcely make any alteration in the movement of the pulse.

C H A P. XIX.

*On the combination of the superior pulses
with the intestinal.*

IT is more usual to find the species of *combination* or composition, now under consideration, than that which has been examined in the foregoing chapter.

The disorder of the functions of the viscera of the Abdomen having always a great share in most maladies, it is not surprising that the changes of the pulse, which indicate or follow these disorders and their effects, are very frequent. We shall therefore easily find occasions of observing the *combination* of the *superior* pulses, with the *intestinal*.

We shall see in these observations the different kinds of critical pulses, one while succeeding each other in the Paroxysms or different stages of the malady, another while, presenting themselves at the same

N time

178 INQUIRIES concerning the PULSE.

time or succeeding each other very rapidly.

Finally we shall find them more or less predominant, the one over the other, according to the more or less difficult determinations of the critical effort, all which will be exhibited in a very sensible manner to the finger of an attentive observer.

OBSERVATION XCVI.

THE pulse is *brisk, frequent, rebounding*, in a young subject on the fifth day of a continued fever. He had been five times bled in the arm which did not hinder the bleeding at the nose, indicated by the *rebounding*, from appearing towards the end of the sixth day: about the middle of the seventh, the pulse changes suddenly without our being able to ascribe it to the action of any remedy; it becomes *unequal, salient, with some intermittences*; the belly growls; a gentle purge luckily given the next day, being the eighth of the malady, produces considerable evacuations; the pulse becomes gradually

gradually *superior* the following days ; it's pulsations are *equal, dilated*, reduplicated with suppleness ; the body becomes bound, notwithstanding the use of apozems slightly purgative ; and the spitting ensues towards the eleventh day ; the phlegm is more concocted and more abundant towards the fourteenth, and the malady terminates about the twentieth.

OBSERVATION XCVII.

A PRETTY considerable fever but without any dangerous accidents in an old man whom I had not an occasion to see 'till the eleventh day. He had had on the seventh a spontaneous looseness very abundant ; this looseness continued still on the eleventh ; the pulse slow, small, *unequal, with some saliencies* ; there appeared on the twelfth some *reboundings*, the pulsations became afterwards more *full* ; more *soft, reduplicated* and *equal*, there were observed four of this kind, after which the *unequal* pulsations recommenced ; on the thirteenth the pulse was more decisively *superior* ; the patient

180 INQUIRIES *concerning the PULSE.*

took two glaffes of Caffa water, with two grains of stibiated tartar, he vomited pretty abundantly; the next day, *viz.* the fourteenth, the pulse was evidently *pectoral*; the cough appeared two days after, it became unctuous, the spitting was abundant towards the sixteenth, the purging disappeared from the end of the fourteenth; the malady ended by expectoration towards the eighteenth: the expectoration was not impeded by the action of the emetic; altho' it had been so by that of the purge in the ninety third observation.

OBSERVATION XCVIII.

A DEFLUXION on the breast, and spitting of blood in another old man, notwithstanding many bleedings, and the use of the ordinary remedies, the pulse continues always *close, uncritical* 'till towards the eleventh day; then it begins to be developped, *its pulsations become in a little time very unequal, it has intermittences succeeded by lively saliencies of the artery.* I predicted evacuations of the belly; they are abundant
from

from the thirteenth to the fourteenth ; the spittings which did not come 'till then, but with difficulty, are suppressed during that time ; the pulse becomes *pectoral* notwithstanding a slight purge which had but little effect on the sixteenth ; the cough appears again, the phlegm is concocted, abundant, and comes easily, the belly becomes bound, the malady terminates happily towards the twenty first.

OBSERVATION XCIX.

A *NASAL* and *pectoral* pulse in a young subject at the end of a continued double tertian fever, for which the patient had often been let blood and taken purges and febrifugous apozems : he coughs and spits abundantly ; the body is costive ; the pulse becomes *unequal, salient, intermitting*, there comes on at night a considerable looseness ; the pulse becomes *superior* and three days after is quite *pectoral*. The spittle appears well conditioned, and the patient recovers.

OBSERVATION C.

A *NASAL* and *pectoral* pulse towards the end of a malignant fever, the patient discharges at the mouth and nose for some days much mucous matter, somewhat purulent and bloody; there were administered during that time, slightly purging apozems; the pulse becomes *concentered*, then *irregular* and very *unequal*, it is soon followed by a looseness; the spitting ceases, and the patient remains in a languishing condition.

OBSERVATION CI.

A *HARD* pulse, pretty *full*, very *unequal* and *salient*, towards the fifteenth day of a malady, of a bad kind, for which the person had been six times let blood, had taken an emetic, followed the next day by a purgative potion, and afterwards by laxative apozems: the belly is swelled, and is stretched without pain, is troubled with much growling and frequent inclinations to

go to stool ; the next night, that is, about the sixteenth, he had abundant evacuations : the pulse was *concentered* the following day, and frequently *intermitting*, nevertheless the evacuations discontinued ; the pulse is *developped* on the seventeenth, there ensues a sharp pain between both shoulders ; the pulse was *pectoral*, the belly costive ; the cough appeared towards the nineteenth, the phlegm was pretty well concocted and abundant ; the pulse grew *stiff* and became somewhat rebounding towards the twenty first, and the patient discharged at the mouth and nose, the following days, matter tinged with blood ; he remained swelled, and his case did not appear thoroughly decided ; they did not cease to purge him with apozems impregnated with salts.

OBSERVATION CII.

A FEVER which began by a considerable shivering, accompanied with a violent head-ach, in a young man of a strong constitution ; the pulse is *rebounding* towards

184 INQUIRIES *concerning the PULSE.*

the fourth day, there ensues the next day a bleeding at the nose which lasts with intervals 'till towards the seventh day: the pulse being *rebounding* and *close*, as it were *abdominal*, it becomes, after the patient's having taken a vomit, *inferior*; it is *irregular*, *intermitting*, the belly discharges abundantly the following days, and towards the eleventh the pulse *rises*; it is *full*, *vigorous*, pretty *supple*, *reduplicated*, quite *decisively pectoral*, the cough is strong towards the fourteenth, the Phlegm comes very abundantly, and is quite concocted 'till towards the twentieth, and then the malady terminates.

This patient had been blooded thrice, twice in the arm and once in the foot, during the three first days; on the sixth he had taken a vomit which had operated well, a slight purge on the eighth followed by considerable evacuations, and well conditioned; the rest of the time he usually took remedies proper to forward the expectoration, and he was purged again at the end of the malady: the disease was
treated

INQUIRIES *concerning the* PULSE. 185
treated according to the indications drawn
from the pulse.

OBSERVATION CIII.

A PUTRID malignant fever with a bleeding at the nose on the first days; the pulse continues *rebounding* after several bleedings of the foot; it becomes *unequal* and *intermitting* towards the seventh, the patient usually taking apozems quickened by emetics which never occasioned vomiting; the belly discharged abundantly towards the tenth.

We may evidently observe two kinds of pulses in the following order; to four or five plainly *rebounding* pulsations, succeed five or six pulsations *irregular*, hurried, salient with one or two intermittences. The pulse is therefore at the same time *nasal* and *intestinal*, and in fact is followed by a bleeding at the nose, as well as by a looseness, which last by intervals 'till toward the thirtieth: the state of the malady was but
imper-

186 INQUIRIES *concerning the* PULSE.

imperfectly decided since the patient remained in a languishing condition and in a kind of a slow fever.

OBSERVATION CIV.

AN erisipelas on the face, with a considerable fever in a young man; a bleeding at the nose towards the fourth day; the pulse from being *hard* and *rebounding* notwithstanding three bleedings in the foot, becomes towards the sixth *unequal* and *very salient*, and *somewhat variably, frequent*. The patient who had taken some slightly purgative apozems discharges much bilious matter; the following days the *reboundings* which had not entirely ceased during these evacuations, become more evident; the pulse is more *supple*, more *dilated* towards the ninth; the voice became hoarse, a cough ensues, and that towards the twelfth: there is at the same time a slight bleeding at the nose, an imperfect expectoration, and a looseness, during which time the pulse was compounded in this order; *five or*
six

six pulsations, reduplicated with equality and softness: they denoted the pectoral pulse; and were followed by two or three sudden hard reboundings of the artery, which indicated the nasal pulse. There ensued afterwards six or seven pulsations, unequal to each other, salient, tremulous, and there were some so little apparent, that we had room to suspect intermittences, which characterize the intestinal pulse. It is in this order that the pulse was always followed at intervals, by evacuations suitable to each species, and continued till towards the twenty seventh: the malady was not then determined.

C H A P. XX.

On the combination of the different kinds of inferior pulses, with different kinds of the superior pulse.

THE more we advance in the history of the *compounded* pulse, the more do we meet with difficulties which require the scrupulous attention of observers.

The *combinations* which have been described in the foregoing chapter are found in very slight maladies, they are not so difficultly distinguished as those that are to be treated of in this chapter, and which regard dangerous maladies. There will be still more difficulty to trace the *mixtures* of the different kinds of pulses, which are to be considered in the sequel; but these difficulties will diminish in proportion as the practitioner shall acquire a habit of making observations on this matter.

The causes of the variations and the instability of the pulse, the changes or the consequences which they indicate, the manner in which they are to be estimated and classed, the better to penetrate into the views or progress of nature, and all the important questions which may be proposed on this head, do not belong to this place.

We shall only recite here, many histories of diseases, wherein the *simple* pulse takes at different intervals, different characters; one while the *inferior* pulses shall precede the *superior*, and another while the latter shall be followed by the former; the *stomachic* pulse will be followed by the *pectoral*; to this will succeed the *urinary* or *nasal* pulse; many kinds of pulses which, as it were, combat each other, will shew themselves at the same time, and will be intermixed one with the other.

In a word, we shall see examples in which it will be not unreasonable to imagine

gine, that nature fluctuates in an extraordinary kind of uncertainty, by the redoubled efforts she makes to carry off the obstructions which are found in the different organs. One while she seems willing to determine the crisis by many organs at the same time, another while she abandons one to fix upon another, which she afterwards quits in order to return to the first that she had undertaken to disengage.

Such is nature in general, such the progress, and the whimsicalness of the phenomena of grievous maladies, hard to be conducted to a happy end, as they are but too well qualified to elude the most justifiable methods of treatment.

All these phenomena become in general more or less irregular, more or less tumultuous, according to the difficulty of the crisis that is preparing. This is all that can be advanced here on the subject : we must flatter ourselves, that some expert and bold observer will one day succeed in clearing
up

INQUIRIES concerning the PULSE. 191
up entirely, the difficulties which the sequel
of this performance may render less imprac-
ticable.

OBSERVATION CV.

A FEVER, cough, spitting of blood,
an acute pain about the left hypocondrium :
the pulse is *convulsive* the three first days ;
it seems to be a little *developped* after five
bleedings ; on the fourth day it becomes
brisk, hurried, irregular, stomachal ; an eme-
tic administered upon this indication, pro-
cures an abundant vomiting ; towards the
sixth, the pulse is *full, reduplicated, vigo-
rous, pretty equal* ; the spittle is no longer
tinged with blood, but becomes thick
the two following days.

Towards the ninth, the patient felt on a
sudden in the left hypocondrium, a kind
of *start* which may be looked upon as an
instantaneous relaxation of some part of the
intestines. The pulse afterwards became
inferior, intestinal, with unequal pulsations,
hard,

192 INQUIRIES *concerning the PULSE.*

hard, rounded with intermittences. The spitting is almost suppressed, the belly flows abundantly, after a slight purge administered on the eleventh, the evacuations continue naturally until about the thirteenth; the pulse becomes again *pectoral*, with some *reboundings*; the spittle is again bloody; the nose discharges much mucous matter lightly tinged with blood, and towards the sixteenth the pulse being a thoroughly decided and fixed *pectoral*, the spitting is concocted and comes in abundance; the patient is on the mending hand towards the twenty-fifth.

OBSERVATION CVI.

THE pulse was *brisk, irregular*, somewhat *rounded*, pretty *frequent* towards the fourth day, in a patient troubled with a spontaneous vomiting. The vomiting was followed two days after by a painful numbness in the right hypochondrium; he was twice let blood in the arm; the vomiting ceased,

INQUIRIES concerning the PULSE. 193

ceased, the pulse was less *hard*, less *unequal*, and seemed *concenterd*.

The patient was very yellow towards the seventh, two days after the pulse *developped* itself a little; it is *irregular*, more *salient*, it seems to indicate a looseness, until many days after; towards the eleventh the pulse is *pectoral* and somewhat *rebounding*, the spitting is thick and abundant; on the fourteenth the pulse becomes again *intestinal*; and towards the twentieth there are copious evacuations that terminate the jaundice, for which they were always used to administer apozems, more or less purgative; after these evacuations the pulse is again *pectoral*; the patient spits much until towards the thirtieth, and the malady does not seem quite terminated.

OBSERVATION CVII.

AN erisipelas in the face, with a considerable fever, in a young man of a strong constitution. The pulse *develops* itself but
O weakly

194 INQUIRIES concerning the PULSE.

weakly towards the fourteenth day after five bleedings; we perceived from time to time, some clearly decided *reboundings* in the artery, there were also many pulsations a little *rounded*, in which the artery seemed *tremulous*, but with a *remarkable stiffness*, the patient has frequent inclinations to vomit, an emetic was administered on the sixth; the same evening the pulse, after an abundant vomiting, is *more strong, more developed, rebounding almost at every third pulsation*; the patient bleeds at the nose the following night; this bleeding lasted for some days, but still diminishing as was the *rebounding* pulse. During the time that the pulse became *salient, irregular, with some intermission*; there were considerable growlings in the stomach, the bilious matter flowed in abundance, after a slight purge; the laxative apozems which the patient threw up before the pulse's being *intestinal*, passed easily, and encouraged the flow of the bilious matter; towards the eighteenth the pulse which had not ceased being somewhat rebounding from time to time, becomes

comes *equal, soft, reduplicated, pectoral*: all the evacuations cease excepting the expectoration, which was very abundant. There were, during this expectoration some alterations in the pulse, which indicate the *sweating pulse*, and in fact it comes on every night; it continued as well as the expectoration, until the twenty-eighth: the patient is in hopes of recovering; the malady however seems not thoroughly decided.

OBSERVATION CVIII.

AN acute fever, with an inflammatory disposition in the abdomen: the pulse is for the first days *small, concenterd, very convulsive*. It becomes *developped* towards the sixth, after many bleedings; and becomes shortly *irregular* with some *intermittences*, that is to say, *intestinal*. It's pulsations are *hasty, somewhat rounded, tremulous*, which constitutes the pulse proper to the effort of the stomach: the pulse continued in this state pretty near until towards the ninth; the patient threw up the prescribed remedies

196 INQUIRIES *concerning the PULSE.*

that were administered to him; towards the tenth, they find some pulsations *strong, full, reduplicated*, that is, the beginning of a *pectoral* pulse; however, the vomiting continues, as well as the pulse that is proper to it, and which is discovered in the intervals of the *pectoral* and *intestinal*: the critical evacuations of the belly appear towards the fourteenth; the following days there is a thick expectoration, somewhat concocted; but there remains always in the pulse a certain *stiffness*, a characteristic of *irritation*, which indicates, that the stomach is still in a state of effort; there ensues towards the eighteenth, a spontaneous vomiting from the effect of a very gentle purge; and until the twentieth the patient vomited five or six different times; between the twentieth and thirtieth, the pulse continued *tensive, concenterd, uncritical*; the patient finds himself in a state of dejection, which shewed, that the malady was not duly decided.

OBSER-

OBSERVATION CIX.

A COLD neglected in a young man of a good constitution, the expectoration is abundant, the pulse is *full, reduplicated, pectoral*; the patient eats and drinks heartily, notwithstanding his condition; he has an indigestion, followed by a vomiting, which lasts for two days at different intervals; the pulse is during the vomiting, and until the fourth day of the indigestion, *close, irregular, tremulous, unequal*, that is to say, *stomachal*: it *develops* itself afterwards, and becomes towards the sixth *intermitting, irregular, intestinal*: we discover in it pulsations of the *pectoral* pulse; there are some that seem to *decline gradually*, like the *urinary pulse*; the patient, to whom were given many oily potions, had bilious evacuations, pretty considerable towards the ninth, which worked very well: the following days the pulse becomes again *pectoral*, and the expectoration takes place. There is however in the

O 3

pulse,

198 INQUIRIES *concerning the PULSE.*

pulse, though *pectoral*, a characteristic of *irritation*, which gives room to suspect a suppuration in the breast; the spittle becomes in fact putriform, and the patient falls soon after into a slow fever.

OBSERVATION CX.

A FEVER and habitual pain in the right kidney, after a suppuration in that part. The patient eats during some days more than usual; the fever augments considerably, the pulse is very *close*, very *brisk*, the first days; is *developped* after four bleedings, becomes afterwards *intermitting*, and at the same time *pectoral*: there were abundant evacuations, occasioned by two ounces of manna administered on the seventh; towards the ninth, there was a cough, attended with some pretty thick spittings; the urine was in small quantities, the pain in the kidneys encreases towards the eleventh; the pulse becomes a little more *brisk*, *close*, *irregular*, and there are pulsations which have a sort of *declining*
proper

proper to the *urinary pulse* ; the urine flows very abundantly towards the fourteenth, it is charged with a purulent matter, and the patient returns to his habitual state, excepting that the fever was essentially more considerable than before.

C H A P. XXI.

On the Pulse of the Menses, and the hemorrhoids combined with that of the other fluxes of the blood, and principally with the nasal.

WE have already seen, that the *rebounding* constitutes the principal characteristic of the different pulses, which precede fluxes of blood * ; this truth will find a new support in the following remarks.

* Chapter 14.

The relation between the veiny vessels of the inward part of the nostrils, and the viscera of the abdomen, is demonstrated by daily observations of practitioners. We may safely advance, that the discovery of the circulation of the blood has made people too much neglect the particular attention that this relation deserved; the discovery of the circulation is a glorious light, which seems rather to have dazled than enlightened mankind. The greatest part of the Moderns founded on a truth so well established, have believed, that they ought to admit of nothing but what is judged conformable to this truth. Thus ever prejudiced against the opinions of the antient physicians, they have rigorously set aside all facts which the laws of circulation do not comprehend.

Stahl, and his Disciples, full of their system of the *soul's* executing all the functions, have placed themselves between the Antients and the Moderns. They believe perhaps, that the laws of circulation might
with-

withdraw the course of the liquids from the consequences of their theory; wherefore they have particularly attached themselves to collect and set off all the facts which they have judged proper to invalidate the known laws of circulation.

If we should make an exact comparison of the observations of the Antients on this matter, with the consequences which necessarily follow from the theory of the Moderns, we should neither want reasonings, nor facts of anatomy and practice, to object against this theory very considerable difficulties.

In fact if it be true, that there is between the extremity of the arteries and those of the veins, vessels of communication, or rather that these extremities which are joined to one another, perform one while the function of arteries, another while that of veins; that is to say, that the humours move therein according to the particular determinations of the oscillations, we shall have
at

at the same time a great number of vessels in which the progressive motion of humours don't always follow the received laws of the blood's circulation.

If besides, we consider the great number of the anastomoses or branches of communication between the different vessels, as well arterial as veiny, and suppose, as it seems natural, that these branches can be for no other purpose but to furnish the humors passages of coming and going, of *flux and reflux*, may so again subtract a great number of vessels from the same laws of circulation.

In short, if all the *mucous tissue*, or the cellular substance, is nothing but a homogeneous body, and *glutinous*, more or less thick, divided into a very great number of little concentric and excentric layers, and that are nothing more at the bottom than the same *mucous body* which the Chimists find very abundant in the plants that animals feed upon ; and if this *mucous tissue*, unprovided
with

with vessels and even with fibres properly so called, is disposed and laid out in animals so as that the liquors which it contains may be moved in all directions, we must again acknowledge, that the laws of circulation have no place in the *mucous tissue* or cellular substance, which alone make up at least the half of the volume of the body.

Now, may say the partisans of the opinions and observations of the antients, the greatest part of the changes in maladies, the stagnations of the humors, swellings, extravasations, inflammations, gangrenes, supurations, cicatrices, obstructions, metastases, *serous fluxes*, *mucous fluxes*, revolutions in the movements of the matter of perspiration, resolutions of tumors, all these changes which are the causes or the effects of the greatest part of maladies have precisely their seat in the mucous or cellular substance, in these last vessels which join the veins to the arteries, in the infinite ramifications and reticula or net-work formed
by

by the communications of the vessels which form the anastomoses.

We cannot deduce any of these changes from the laws of circulation alone. Riviere therefore was not much out in his conjectures, when he judged by what he knew of the circulation, that this discovery can be of no great utility in the practice of the art.

It would consequently be very hard to condemn rigorously such of the Moderns as have distinguished themselves from the herd of those authors outrageously bent upon crying down the Antients, for the reason of their ignorance of the blood's circulation, and who look upon it only as a particular fact in Physiology.

Were we to judge of Hippocrates only as an Anatomist we could not, on reading the fifth chapter of his book on *human nature*, but lose a great deal of that veneration we had for him ; because that distribution of
vessels

vessels by which he would establish communications between the head, the trunk, and the extremities, is nothing else, as he describes it, but a down-right fiction.

But in considering Hippocrates only as an observer, this very fiction becomes, as many other parts of his works, comparable to those antiques which express nature with so much force and truth.

When Hippocrates imagined that distribution of the vessels, it was doubtless in consequence of the recitals made to him by those melancholy persons subject to the hæmorrhoids. It is probable they said then as they do at this day, that they feel *THE BLOOD MOUNTING from the bowels to the head with a sort of vehemenence, that they feel it stop in the loins, mounting afterwards along the back bone to the head, and going to form there a disorder which puts them as it were into a kind of intoxication; at other times they imagine they feel the head disengaging itself, and the blood returning along*
the

206 INQUIRIES concerning the PULSE.

the spina straight downwards to the hæmorrhoidal vessels, and producing there the critical flux by which they find themselves so greatly relieved.

These phænomena are now deduced only from the disorders of the nervous oscillations, which are, it is true, the principal determining cause; but the disorder of these oscillations does not sufficiently explain the inequality of the distribution of the blood in these moments; it is only by considering the union of the veins of the head and trunk with the sinuses of the head and spina, that we can come to a clear conception of the reasons of these phænomena.

The result from all these remarks is that in assembling the facts which are their objects, and in endeavouring to range them under laws upon which they may depend, we must necessarily consider the veiny system, or the assemblage of all the veins, as being, in an especial manner, subject to
nervous

nervous oscillations, and that they form a separate system, a particular organ which has peculiar movements, variable according to circumstances.

These reflexions will be justified by the greatest part of the observations related in the sequel of this chapter.

OBSERVATION CXI.

A YOUNG man *bilious, dry* and melancholy, subject to the hæmorrhoidal flux, has a presaging of it by a kind of general lowness of spirits which he feels some time before the flux comes on; this lowness of spirits is immediately followed by a violent pain in the head which does not cease but by the flux of the hæmorrhoidal blood, and a slight bleeding at the nose, which usually terminates the hæmorrhoidal attack.

The pulse two or three days before the determination of the hæmorrhoidal flux, is
high,

208 INQUIRIES concerning the PULSE.

high, frequent, irregular, with some evident reboundings; the elevation is never compleat; we perceived always a particular hardness of the artery; the irregularity is not so marked as in the pulse that indicates the looseness; that is to say, that the artery does not make little hasty bounds, and very different from the ordinary diastoles. This pulse has in it evidently something of the inferior pulse, and seems compounded of all the specieses of the pulses of this class; and in fact the bowels are in a considerable movement, this commotion finishes by the hæmorrhoidal flux.

In proportion as the flux approaches it's decline, the pulse rises, it becomes *superior*, the *reboundings* are frequent, and the bleeding at the nose succeeds these phænomena; after which the pulse resumes it's *equality* and natural *suppleness*; there however always remains in it a particular *constriction* with a little irregularity. There is therefore in the paroxysms now under our consideration a *mixture* of the *inferior* and *superior* pulse, that

INQUIRIES *concerning the* PULSE. 209
that is of the *hemorrhoidal* pulse with the
nasal.

OBSERVATION CXII.

AN old man subject to the hemorrhoids, had during an attack the pulse *hard, unequal, frequent*, was evidently dilated tho' *tremulous*, with *some slight reboundings*; a violent emotion of passion which was followed by useless efforts to vomit, made at first the pulse *small, more brisk, less unequal*; the hemorrhoidal flux ceased; two days after the pulse became *very strong and rebounding at each pulsation*; this was the prelude of an attack of the frezic, which ensued soon after, during which the nose sometimes discharged a little blood; it seemed a favourable symptom to the by-standers, because they pretended they had seen the patient almost always bleeding at the nose, towards the close of his hemorrhoidal attacks. It was not possible to re-establish the hemorrhoidal flux, nor to make up for the deficiency by a great many bleedings and other

P

reme-

210 INQUIRIES *concerning the PULSE.*

remedies which were administered in a very small space of time; the patient died of an apoplexy.

OBSERVATION CXIII.

A YOUNG woman of twenty five, very regular as to the periodical time, never scarcely has her *Menses* without being preceeded or followed by a bleeding at the nose. The pulse becomes always on these occasions, *hard, tremulous, irregular, frequent and rebounding*; the less the rebounding is, the less the patient bleeds at the nose; if the reboundings take the upper hand almost all the crisis or evacuation passes off by a bleeding at the nose.

OBSERVATION CXIV.

A YOUNG girl who has not as yet had her *Menses*, is subject to frequent bleedings at the nose, the pulse is during that time *full, strong, and, rebounding*; it even has habitually these characteristics, the *menfes* having

having at length appeared the pulse becomes less *strong*, more *unequal*, with *frequent reboundings*. There have been during the first months of the menses, more or less bleedings at the nose as they were more or less abundant; some months after the bleeding did not appear, and the pulse which indicates the menses is no more than slightly *rebounding, hard, irregular*.

OBSERVATION CXV.

A WOMAN subject the first months of her pregnancy to bleedings at the nose, and to slight appearances of the menses at the periodical times, had in this condition the pulse *hard, irregular, strong, rebounding*, which made people apprehend a considerable flux. Two bleedings in the arm, followed however with a bleeding at the nose, renders the pulse *supple* and less *unequal*; the accidents disappeared.

OBSERVATION CXVI.

A SINGLE woman, arrived at the period of losing her menses, has every month the pulse *irregular, brisk, hard, with reboundings pretty frequent*: the menses scarce appear; but she has constantly at that time, a considerable stoppage at the nose, which terminates by an abundant excretion of mucous and bloody matter. It happens from time to time, that the pulse is *intermitting* during these revolutions, and then a looseness joins itself to the other evacuations.

OBSERVATION CXVII.

WE meet very often girls and women, in whom the looseness follows, accompanies, or precedes the menses; and it is ordinary, that if these females have no habitual maladies, their pulse, during the revolution of the menses, is compounded of *the pulse of the matrix and of the intestinal,*
that

that is to say, it is *irregular with the subsiliencies of the artery, very unequal, as well in respect to the force of the pulsations, as the intervals that come between them; there are besides that, some REBOUNDINGS and slight intermittences, or what is more frequent, pulsations so weak, that they are almost imperceptible.*

The pulse is *complicated or compounded*, almost in the same manner in the hemorrhoidal fluxes, joined to the looseness: it has been found often disposed so as that the hemorrhoidal was predominant, and then the flux of blood remained for some days, and the evacuations of the bilious matter succeeded it; the evacuation of the blood suspended that of the bile; this is a fact proper to be known in the treatment of fevers complicated with the hemorrhoidal flux; and even with every other loss of blood; fluxes of blood in general suspend bilious evacuations, and even the critical course of all fevers. Might not there be made some application of this observation to the theory of bleeding?

OBSERVATION CXVIII.

AN old man subject to almost periodical fluxes of blood by urine, has constantly, when the time of the flux approaches, the pulse *unequal, stiff, irregular, with some very unequal reboundings, and there is frequently a kind of subsiliency in the artery.* This revolution in the pulse is followed by an abundant evacuation of blood when he makes water.

OBSERVATION CXIX.

A PATIENT who had for several days acute pains in the right region of the kidneys, had the pulse very *brisk and convulsive*; it *developped* itself a little, became *irregular, with some slight reboundings*: which naturally indicated the hemorrhoidal flux; but the patient voided by the urinary passage for some days, blood in great abundance, probably, in consequence of the acute pain in the right kidney, which had determined the flux that way.

OBSER-

OBSERVATION CXX.

A PISSING of blood for three days in a melancholy person, naturally disposed to the hemorrhoids; the pulse is *inferior, pretty much dilated, irregular*, there are some *reboundings*, but they are remote from each other; this patient had a looseness before the flux of blood, which ceased as soon as the other appeared, and the *reboundings*, which did not exist during the looseness, shewed themselves with the flux of blood.

OBSERVATION CXXI.

AN old maid very irregular in her menses, is subject, almost every month, to a spitting of blood, which is preceded by a great heat in the breast. This evacuation seems to supply the place of the menses. *The pulse is during and before the spitting of the blood, pretty irregular, but much tending towards the nasal, with reboundings a little softer, more dilated than those that indicate the bleeding at the nose.*

OBSERVATION CXXII.

A GIRL had in her leg a varicous ulcer, which discharged a great quantity of blood every month, as if the menses, which did not come the ordinary way, passed through that ulcer. She felt before this hemorrhage all the forerunners of the menses. The pulse became *brisk, irregular, unequal, with some slight reboundings, and a tremulousness in the artery.*

C H A P. XXII.

On the Pulse of Sweating, combined with other kinds of critical Pulses.

HIPPOCRATES hath asserted, that every crisis ought to be universal *. Does he mean, that there is no perfect crisis, but that which is performed at the same time, by all the *emunctories* of the body ?

* Prognost. Sect. 3.

That assertion of Hippocrates taken in this sense is not without foundation, since universal crises have been sometimes observed; but these observations are so rare, and favourable crises by particular emunctories, so common, that the remark of Hippocrates is very far from making a general law.

We shall see in one of the following observations †, an instance of a grievous malady, which terminated happily, by an universal crisis, with this remarkable peculiarity, that said crisis was performed at the same time, by all the emunctories of the body, and not successively, after the manner of *common* crises, as are not rarely observed, and to which, without doubt, *Hippocrates* was no stranger.

If it were true, that a *critical* evacuation performed at the same time by all the issues, was an event that could commonly be expected, we might thence conclude, that

† Observation 122.

the treatment of diseases ought to be entirely conducted so as to bring on an evacuation by any possible issue. The physicians who do not think that crises are to be depended upon, and who propose also to prevent or to hinder them, may establish their method thereupon.

If it be verified, on the contrary, that a *critical evacuation*, performed at the same time by all the issues, is a rare phenomenon, it follows, that nature usually determines the crisis by some particular issue; a physician is therefore obliged to second the movements of nature, that is to say, to favour, as much as possible, the *excretory function* of the issues, towards which the crisis seems to be determined; the choice of the methods of treatment ought therefore to be determined according to views, and with precautions which are not to be expected of those that look upon crises as being always universal, and still less from those who do not admit of any.

It is in women in labour, that are found frequent instances of crises that come
nearest

nearest to an *universal* crisis ; a woman that has just laid-in, is in a state that may become in a very little time, the cause of a very grievous malady ; there is then caused, a kind of universal commotion, by so much the more dangerous, as it is the more sudden : when the course of this revolution meets no obstacle, it easily determines the critical evacuations.

If nature is alone sufficient for so considerable a crisis, and one so *complicated*, what are we not to expect from it in all the diseases, whose symptoms are not at the bottom more dangerous than those of a person that lies-in ? and how many maladies are there that may be put into this class ?

OBSERVATION CXXIII.

A CONTINUED fever with paroxysms, in a young man of a pretty good constitution ; the pulse was *rebounding* towards the sixth day, and the patient had bled at the nose at different intervals, for three days ;
the

220 INQUIRIES *concerning the* PULSE.

the pulse afterwards became *pectoral*, and the expectoration was pretty well concocted and abundant towards the ninth: there came on then a sudden and spontaneous variation in the pulse, it became *inferior*, *sallient*, *intermitting*, and the belly flowed abundantly until the fourteenth. At length, there appeared in the pulse *inequalities*, or *gradual elevations*, which indicated sweat, and the patient sweated abundantly towards the twentieth: and then they began to be performed together, or in following one another at very little intervals; and in fact, we observed in the pulse the signs specified to these crises, and they were more or less determined. This state continued for five or six days, without seeming to distinguish the strength of the patient; the pulse re-establishes itself afterwards in that state of *suppleness*, *equality* and *softness*, which indicates a recovery: and in fact, the malady was happily terminated towards the twenty-sixth day.

OBSERVATION CXXIV.

THE pulse is convulsive six hours after being delivered, in a young woman of a very good constitution; the next day the pulse is *developped, irregular, with slight reboundings*; the fluxes come abundantly: on the third day, the pulse which appeared to *grow close and hard*, during some hours, became *superior*; the blood mounted greatly towards the head, the breasts swelled prodigiously, the *pulse grew soft towards the fourth, it is undulating with inequality in the pulsations*; the sweat is abundant. The pulse is concentered from the fifth to the sixth, *it becomes irregular, unequal, with some slight intermittences*; it is manifestly decided *intestinal*, and in fact, it is speedily followed by copious bilious evacuations. The pulse is re-established afterwards, in the state usual to women in child-bed.

OBSER-

OBSERVATION CXXV.

THE pulse is on the fourth day after lying-in, *developped, frequent, a little hard, unequal*, in the following order: we feel pulsations always where there are conspicuous *reboundings*: there are some that are *unequal to one another, and separated by some slight intermittences*; others are combined so as to *succeed each other, gradually diminishing until they become imperceptible*. The pulse *raises itself afterwards by gradations*; the *reboundings appear again, and are followed by the other pulses* in the order just described. This woman sweat greatly, the fluxes are abundant, the breasts swelled and painful, the urine was lacteous; the other evacuations bilious, and the pulse resumes it's natural state towards the ninth day after her lying-in.

We shall often have opportunity to experience in women in child-bed that their evacuations follow constantly the changes of the pulse, which scarcely ever fails to assume

assume all the forms special to the several *critical* evacuations. One while all these modifications present themselves at the same time, that is in a very short space of time, another while they succeed each other in the different days of the labour.

There are however some exceptions to be made in women under *nervous* disorders, or other habitual maladies, because then the state of the pulse resulting from these disorders, prevails over the determination of the critical effort which is performed in the sequel of the lying in. All this regards the history of pulses COMPLICATED with the pulse of irritation.

OBSERVATION CXXVI.

A DEFLUXION on the breast: the Expectoration is abundant and quite concocted towards the seventh day; the patient sweats plentifully, the pulse is at the same time *pectoral* and raised by gradations.

Towards

Towards the eleventh day of a continued double tertian fever, and after purges which had been followed by copious evacuations, the pulse from *intestinal*, that it was before, becomes *superior, undulating, raised by gradations*, it was a *sweating pulse*; the patient sweats very abundantly 'till towards the fourteenth. Then the pulse which had been *pectoral* from the first days, becomes more decisively so; the patient brought up towards the sixteenth and the twentieth well concocted phlegm.

It must be remarked that the question in all these observations is only concerning *critical* sweats, which we must be very careful not to confound with symptomatical sweats.

C H A P XXIII.

On the pulse of irritation or uncritical.

IT is always a great happiness that the pulse *develops itself* in a disease; it is a great misfortune on the contrary, when instead of *devellopping*, it *closes* and becomes *concentered*. We have pursued hitherto the happy effects of the pulse's *development*, it generally takes place in maladies of the simple and kindly sort, which nature, aided in time by the assistance of art, easily gets the better of.

These effects are in general only to be deemed duly *critical* evacuations, preceded by and accompanied with their proper pulse; a condition by so much the more necessary for favourable crises, as it has been often observed that the most compleat evacuations in appearance, have not turned out duly *critical* in the event, because they were neither preceded by nor accompanied with the particular species of their proper pulse.

Q

We

We undertake to examine in this place the fatal effects that accompany or follow the *narrowed* and the *convulsive* state of the pulse : we are going to see crises that have miscarried, *the remains of crises which often occasion relapses*, * universal disturbances in the body, in consequence of imperfect evacuations or such as have been improperly procured, the intestines destroyed by inevitable suppurations, the gangrene in different parts, incurable affections of the viscera, tumours, callosities, cicatrices, the atonia of the organs ; dreadful effects which are the source of chronical diseases almost ever incurable.

The pulse of *irritation* is, as has been already said, † *close, frequent, concentered*, PRETTY HARD, it opposes what is called *concoction* in diseases ; or to speak more justly, the *critical* evacuations which happily terminate them ; it sometimes even effaces the particular kinds of *critical* pulses with

* Hip. Aphor. 12. Sect. 2.

† See Chap 3.

which it is *complicated* so as to render them almost undistinguishable.

The *concoction* of a disease, or, if you will, of the matter of a disease, which has been so much celebrated by the antients, means nothing else at the bottom but a general effort to surmount the obstacles that hinder the free action of the vessels and the functions of the excretory organs. The pulse of *irritation* which supposes considerable disorders or obstacles, is opposed to the mechanism of the *concoction*, and consequently it is always an almost infallible sign that the *concoction* does not take place.

A wound received in a sensible part, changes the natural pulse into a pulse of *irritation*, a lively passion, fear, sorrow, joy, any kind of surprize produce pretty nearly the same effects; the beginnings and the cold fits of agues are also frequent causes of the *convulsive* pulse: fits of the gout and cholick; the pains of child birth, the action of emetics and other remedies are immedi-

228 INQUIRIES concerning the PULSE.

ately followed by the *closing concentration* and *convulsion* of the pulse.

This *uncritical* pulse accompanies and even characterizes in general, the most dangerous malignant fevers; it is also found in many chronical diseases as well as in the last stages of mortal maladies, or such as are not rightly determined.

We easily comprehend that this pulse must have different degrees, and even some particular characteristics according to the nature of the diseases that produce it; and these differences don't escape an experienced touch. There is even room to suspect that the pulse of *irritation* hath also distinctive characteristics according as it is found joined to affections of the head, breast or abdomen.

But we consider here only the pulse of *irritation*, in general, and as far as it is necessary to distinguish it rightly from all the specieses of *critical* pulses, with which
it

it is found oftentimes *complicated*. The anabyfis of this species of pulse, and the close examination of it's variations will one day, without doubt, furnish matters for very interesting observations.

The pulse of *irritation* is, as well as the *critical*, produced by the *action of the nerves*, which is well determined, well directed in every species of *critical* pulses; it is *hurried uncertain, irregular*, in the pulse of *irritation* or the *uncritical*.

There are often joined with the *uncritical* pulse evacuations of all kinds, sometimes even very abundant ones; they are excretions effectuated without concoction, that is to say, by the expression, by the convulsion of the organs. It happens very seldom that they are salutary, there is no object of greater importance to the attention of Practitioners than not to confound them with the *critical* excretions preceded by and accompanied with their peculiar pulse.

The difference between these *critical* and
uncritical evacuations has not escaped the
 observing genius of Hippocrates: “ in
 “ diarrhæas and spontaneous vomitings, if
 “ the evacuation is of such humours as
 “ ought to be purged off, the patients are
 “ not incommoded by it, and easily support
 “ it; if not, they suffer it with uneasiness.
 “ It is just so with the evacuations which
 “ are performed by the vessels; if the eva-
 “ cuation is performed as it should be, the
 “ patients are not the worse for it, they
 “ support it easily: if not, the contrary
 “ happens. We must therefore have regard
 “ to the region, time, age, and to the
 “ maladies with which it suits, and to those
 “ with which it does not.*

These observations are the fundamental
 and elementary truths of the art; they
 make us sensible of the difference which we
 must screen between the *symptomatical* and
critical evacuations; in the first the pulse is

• Hipp. Apor. 2. Sect. 1.

oppressed, and indicates nothing favourable; in the others it is and continues for some time, developped or *excretory*; it indicates the superiority of the force of Nature.

C H A P. XXIV.

On the pulse of irritation complicated with the uncritical.

THE pulse of *irritation* is not always mortal, or to speak more properly, is only so by it's duration; if it subsists only during the first stages of the diseases; which are of more or less duration according to the nature and degree of these diseases; if the pulse *develops* itself afterwards, and has no marks of *irritation* during the time of it's *development*, this state is generally not very dangerous; it is what is found in many maladies which are happily enough terminated. The pulse of *irritation*, on the contrary, becomes very dangerous in proportion as it stretches beyond the first

Q 4

stages

232 INQUIRIES concerning the PULSE.

stages of the diseases, it impedes the *concoction* and critical evacuations; we can scarcely in such cases expect a favourable issue.

This very pulse of *irritation* may however subsist during the whole time of the malady, without being so predominant as to occasion an invincible obstacle to the movements of the crisis, and the changes which precede it: it is in such cases that the *critical* and *uncritical* pulse are complicated with each other.

We now easily see that the maladies wherein this *complication* is found, must be doubtful as to the event, and that we must judge of their termination according as the *critical* or *uncritical* pulse prevail more or less the one over the other.

This is pretty nearly the progress of the pulse in this *complication*; it is close, *convulsive* in two or three or many pulsations; it

it is developped, nay excretory in some others: sometimes the *convulsion* is very evidently perceived in the same pulsations which seem to *develop* themselves, or which indicate some critical evacuation; but it happens also that when the *convulsive* pulse subsists eminently during all the time of a disease, this pulse changes suddenly, and shews itself scarcely only under the appearance of the natural pulse, or of some species of critical pulse which does not continue for any considerable time; in which case the malady is exceedingly dangerous.

This phenomenon can be only attributed to some mortal oppression which begins then to take place in some part of the body. The pulse of *irritation* exists nevertheless, at the bottom during these moments; it is the last and most dangerous degree of it's complication with the critical pulse. Let us here examine a very important point.

Physicians

Physicians have always been very much divided about the importance and application of those famous apothegms of Hippocrates, by which he absolutely subordinates the views of the art, to the movements of nature : he says in many places, that a *physician must follow nature, and direct precisely his views to the same aim with her ; and that the physician is only the minister of nature, and that she alone cures diseases.*

Such among the Antients and Moderns as have been contrary to this decision of Hippocrates, pretended, that it was dangerous to rely upon nature, *that consequently we ought to avoid crises, hinder them, or endeavour to determine them as we think proper ; we must, continue they, direct nature, and always look upon the fever and other maladies, as being directly opposite to the vital principle.*

The most that the partisans of this opinion will allow to Hippocrates, is, that
 slight

slight disorders, simple and benign maladies, may be cured as well by the help of nature as that of art: but not in dangerous and complicated diseases, where the powers of nature seem totally *disconcerted*, since there appears no mark of a *concoction*. Is it reasonable, that the views of a physician should remain subordinate to *critical* movements that do not exist, and which cannot be foreseen? This is the knot of the difficulty, and at the same time, the greatest objection that can be made to the sentiment of Hippocrates.

It must be confessed, that they who blindly follow this sentiment, will be hard put to it to get rid of the difficulty, and of many others which the partisans of the contrary opinion will be enabled to start against them; they will not certainly have on their side the great number of patients who are persuaded that they cannot be cured, but by physick; nor the physicians, whose principle it is to estimate by reason-
ing

236 INQUIRIES *concerning the PULSE.*

ing the nature and progress of diseases, as well as by the action of remedies.

These are the principal reasons whereby the partisans of Hippocrates are assured, in their opinion : they in the first place advance, after Hippocrates himself, that there are acute diseases, mortal in themselves, and above the reach of every kind of succour ; and that there are some quite as dangerous among the chronical, wherein remedies, how little soever an effect they may have, can only shorten the patient's life, or diminish his strength, to no purpose : these mortal and incurable maladies, are those of which Hippocrates has said, that we must not undertake to treat them, because they are above the force of art † ; an acknowledgment which draws upon Hippocrates and his partisans, that epigram of *Asclepiades*, who called the antient physick, *a meditation on death*.

† Book of the Art.

They afterwards say, that there are maladies, wherein the symptoms appear alarming, though they are nothing else at the bottom but victorious efforts of nature: it is thus that the reduplications which precede the crises, are always very considerable §; it would be a destructive error to take these salutary efforts that indicate a cure, for symptoms to which they must oppose speedy remedies.

They add, finally, that the maladies wherein the remedies seem followed by the effects which are to be expected from them, are not, for all that, subtracted from the critical efforts of nature; a purge or an emetic never act so perfectly as when nature is disposed to second them; if they are administered out of that time, they are always hurtful, or at least useless, or *indifferent* *.

§ Hippo. Aphor. 13 Sect. 2.
concerning indifferent remedies.

* See Chap. 33.

The attention of a physician is reduced therefore, according to Hippocrates, to distinguish well, maladies mortal in themselves from those that are not so ; these only admit the use of remedies placed in the favourable dispositions formed and indicated by the critical movements of nature : it is therefore, according to this system, the physician's business is to know, how to discern in dangerous maladies, what the symptoms are that indicate the happy efforts of nature, in order to make the most of them, instead of being unreasonably afraid of them: they must apply themselves to know the ways which nature has a tendency to trace out for herself, and to follow them by a suitable method of treatment ; they must also take care, not to multiply remedies in cases where it is necessary to employ only a small number.

It was in consequence of these reasons, that one of the commentators of Hippocrates,

crates †, had advanced, “ That in order to
 “ make the appearances of the crises,
 “ now almost effaced, rise again on our ho-
 “ rizon ; it is necessary for physick to re-
 “ turn to it’s ancient manner of practice,
 “ free from the chimerical and fabulous
 “ yoke of human inventions ; if we could
 “ once bring ourselves to revere nature, to
 “ observe her scrupulously, not to thwart
 “ her in her operations, not to interrupt
 “ her movements ; but to follow them
 “ without perverting them : we should a-
 “ gain see the crises appear, and the
 “ wonders they produced, which the an-
 “ tient schools have so greatly celebrated.”

But can such reflections satisfy, or con-
 vince a physician, who has seen dysenteries
 of a long standing, cured by a few doses of
 hypecacuanha ; old head-achs, by bleeding
 in the foot ; spittings of blood, by bleed-
 ings or emetics ; the scurvy, by remedies
 appropriated thereto, &c. these maladies,

† Hequel Aphor. 33. Sect. 2.

and so many others which, abandoned to themselves, could not be cured, at least, but very rarely, are seen to give way shortly to appropriated remedies.

Is it not natural, might these physicians say, to judge of the power of the art by such effects? and ought not we to believe, that by means of remedies properly applied, it is possible to carry off in the same manner, most maladies at their birth? don't we see, that almost all the dangerous symptoms are troublesome, only as far as they hurt the functions of the viscera? and that whatever the disposition is, can there be any indication more urgent than that of removing obstacles so pernicious?

We have laid before our readers in this place, these two opinions, only to give them room to remark what advantages they may derive from the history of the pulse.

The partisans of the ideas of the Antients, founded on the *critical* pulse, may
say,

say, that excepting a malady is mortal in itself, in which case all assistance of art is useless: there must necessarily be performed, some critical effort, at a certain time of the malady, and that it is then that we can employ with success, the appropriated remedies, if we think them necessary, or let nature act, if we have room to believe by the presence of some *critical* pulse manifestly declared, that the crisis may be happily terminated of itself.

The partisans of the contrary opinion, will not fail to alledge, that every malady is nothing else but a state of *irritation*, always subsisting in the parts affected, and always remarkable in the pulse whatever changes happen to it; now, this state of *irritation* never ceasing to threaten the *vital principle*, nothing ought to be so pressing, as to endeavour to destroy, or at least, to ward off so dangerous a disposition; if the malady happens to be unsurmountable in itself, one has at least the consolation of having opposed every possible remedy; if it is otherwise, one cannot doubt, but the ef-

fects of the remedies properly reiterated, will lay hold on the causes of the malady, and facilitate the action of the organs.

C H A P. XXV.

On the Pulse of irritation, complicated with the critical, in acute diseases, which have a happy termination.

HOWEVER exact the general and particular descriptions of the changes that happen to the pulse in diseases, may be, it would be difficult to estimate these changes, in relation to the practice of the art, if the descriptions, upon which we regulate ourselves, could not be referred to the mechanism, as well as to the progress of the maladies.

Wherefore, to establish properly this relation, there is no surer method than that of considering the state of the disease in it's utmost simplicity.

Nothing

Nothing approaches nearer to a state of malady in a healthy body, than the phenomena of excretions and secretions, which are performed with some difficulty. We immediately perceive in them a general effort of the body, and in particular, that of the secretory and excretory organs, especially at a time when they find some difficulty to perform their functions.

It is certain, that the secretions could not be performed, if the humours had not been predisposed thereto, by little and little, that is to say, if the general action of the body had not first given them a particular modification, which the action of the secretory organs is afterwards to complete.

The general effort of nature, that operates in the preparation of the humours, is the same redoubled when the preparation is performed; and finally, the particular action of the excretory and secretory

R 2

organs,

organs, are the three conditions necessary to every excretion and secretion *.

In the work of digestion, these three periods of time are pretty sensibly manifested. We can distinguish therein the first effort of the stomach on the food, the general revolution of the body, which comes in to the assistance of the effort, and the time being over of the digestion when the action which has been concentrated in the stomach comes to spread itself successively into the different parts. These phenomena are no imperfect likeness of a slight fit of a fever.

The greatest part of disorders, whose principal cause consists in nothing else, but in embarrassed secretions and excretions, may in the same manner be looked upon as the outlines of the paroxysm of a fever. These troublesome digestions, these forced excretions have their progress, their times, their symptoms, which are found in a more sensible manner in a declared and simple fever.

* See *Recherches anatomiques sur la position des glandes &c.*

Thus every disease, how simple soever it be, is at first remarked, only by a state of irritation, of spasmus, of oppression, with which the body is seized. This revolution has it's increase, it's gradation, until the compleat establishment of the malady. Then begins another revolution, which is only the determination of the powers, or the mechanism which serve to prepare the crisis; this revolution lasts until a third period, which is, that when the ducts being rightly disposed, and the humours duly prepared, a last effort is made, which determines the excretions, and terminate the malady.

There are therefore three periods to be considered in the maladies; the first which is nothing else, to use that expression, but the preparation of all the essential symptoms, whereto all the powers of the body, are assembled and concentered. The second, is that, when the concentered powers come to develop themselves, and the humours receive the necessary preparations to

246 INQUIRIES *concerning the* PULSE.

become qualified to be separated into their proper ducts; this second period is generally accompanied by some remarkable change in the organs by which the crisis is to be performed. The third period, is that, wherein the crisis being properly disposed, the secretions are determined with ease, which terminates the disease. It is in this sense, without doubt, we may say with Hippocrates, *that all diseases have the same form, and the same general progress* *.

Every fever considered in it's periods seems composed therefore of three particular fevers; that of *irritation*, that of *concoction*, and that of *excretion*. These three stages are distinct in simple maladies; they are more or less long, and are confounded differently in dangerous and *complicated* cases: from them result symptoms proportioned to the nature and the degree of the malady, which it is always essential to compare with the state of the pulse, in order to be able to judge of the movements that are favourable or contrary to the crisis.

* Hipp. Treatise of Wind. Chap. 2.

These three states, these three fevers, these three periods of the diseases, may be substituted to what the Antients have meant by the *beginning, augmentation, period* and *decline* of a malady §.

The changes that happen in the pulse, exactly follow these three periods, or three states in benign diseases: the pulse is at first, that is to say, during the fever of *irritation, brisk, close, convulsive, uncritical*; it *dilates*, it *develops* itself sensibly, and becomes *full, more strong, more free* in the second period of the malady; when in the last period the excretion is ready to be performed, and that determines itself in fact, the pulse takes on the characteristic peculiar to the evacuations which are to happen; that is to say, it is *pectoral*, if spittings terminate the malady; *intestinal*, if it terminates by evacuations of the abdomen, &c.

But it may be objected, how is it possible to conceive the mechanism that esta-

§ See Thes. des eaux d, Aquetaine;

248 INQUIRIES *concerning the* PULSE.

blishes all these relations between the movements of the pulse, and the nature and periods of the diseases, if we can form to ourselves no idea of the cause that occasions these changes in the action of the heart and in that of the arteries? to which it is easy to answer, that this is not the place to lay down explications. We don't however want principles proper to account for all these appearances which, according to the most received theory, are inexplicable. The exposition of these principles are to be found in a treatise lately published, which it will be no easy matter to criticize*. This reflexion may satisfy well meaning observers; and be sufficient to set aside oppositions founded on prejudices of speculative men, of what nature soever they are.

As the greatest part of the preceding observations may, in many places, relate to the subject of this chapter, we shall content ourselves with presenting here two instances, which seem sufficiently to exhibit

* *Institutiones medicæ, &c.*

an idea of the pulse of *irritation* joined to the *critical* pulses, in considerable maladies, that generally have a happy termination.

OBSERVATION CXXVII.

A PUTRID fever in a young girl who has not had her menses for two months. The pulse on the third day is *rebounding* and plainly *convulsive*, notwithstanding she was twice let blood in the arm. A bleeding at the nose ensued on the sixth day, and determined us to have her twice blooded in the foot. The pulse becomes *intestinal* towards the seventh, but still preserving it's state of *irritation*; then recourse was had to cooling and slightly laxative apozems; they produced no other effect at first but to occasion a vomiting, they soon went off better, and there ensued towards the ninth, pretty copious evacuations; they lasted until the eleventh, when the pulse became somewhat *dilated*, *hasty*, *rebounding*, *irregular*; the menses made their appearance; shortly

250 INQUIRIES *concerning the* PULSE.

ly after, the pulse became *supple*, and quite *developped*; towards the fifteenth, when the menses ceased, it became declaredly *pectoral*. There was administered at that time, a gentle purgative which disconcerted the progress of the pulse, and which scarce had any effect. The pulse was re-established towards the twenty-first, and there ensued an expectoration, during which, was always observed a fund of *irritation* with *reduplications* of the *pectoral* pulse; the malady terminated very slowly, which had not probably so happened were it not for the purge administered in the very moment the crisis was going to be determined.

OBSERVATION CXXVIII.

A DEFLUXION on the breast in a young man, lean and dry, he was blooded five times between the second and seventh day; the pulse, which had been *convulsive* the three first days, *devellops* itself a little on the fourth; it is *pectoral*, but with a considerable

derable *tension* and *stiffness* of the artery ; the phlegm comes up with difficulty, is bloody and foamy from the fifth to the seventh, the pulse becomes *unequal, intermitting*, but always *close*. They purged the patient on the eighth ; he had evacuations pretty abundant, but not very bilious ; on the ninth, they administered kermes, and appropriated decoctions, which were followed by no remarkable effect ; the pulse becomes *pectoral* on the tenth, but is very little *developped* ; the phlegm is somewhat more concocted, and comes up with less difficulty ; (they continued administering the kermes and decoctions ;) on the eleventh the patient had a considerable paroxysm, which began by long shiverings ; and at the end of this paroxysm, the pulse remained *supple* and *open* ; it then became decisively *pectoral* and at the same time, very *undulating* : the patient continued still in the use of the kermes and decoctions ; he spit and sweated abundantly the following days ; he was purged on the eighteenth, and began to mend on the twenty-first.

C H A P. XXVI.

On the Pulse of irritation, complicated with the critical Pulses in chronical Diseases.

ON attentively observing the progress of chronical diseases, we may observe pretty nearly, as in acute distempers, three remarkable stages upon which we must regulate our conduct in establishing and prosecuting the method of treating them.

The only difference that is to be considered here, between chronical and acute diseases is, that the latter run over their different periods more speedily than the others: which in the main, does not hinder the acute as well as the cronical maladies from consisting originally in a disorder of the secretions and excretions; which occasions these diseases having terminations as well as accidents very similar.

The

The last periods of chronical diseases, sensibly discover their relation to, or resemblance with the acute: it has been already remarked, that a chronical disease becomes usually acute in proportion, as it is disposing itself to terminate; Hippocrates says, *that in treating a chronical disorder, we must change it into an acute one* §.

Now, as chronical disorders have revolutions which prepare and determine their crises and their terminations; we must find in them also, the different changes of the pulse which precede and accompany these crises.

Perfect health is a mere idle notion. *No body can flatter himself with having no weak part* *. Our life is only a tissue of disorders, a successive malady which never ceases making a continual progress.

§ Hip. de locis in homine. Chap. 13.

* Celsus, Chap. 3.

We live with this natural weakness of some organs ; and what may appear singular, it is upon this very weakness that the health proper to each individual depends : it is upon it that depend the different constitutions, all which proceed from the difference of the action of the organs § : these are the sources of life, of health, of diseases, and death.

We observe in every age diseases, that arise only from the consequence of the effects which this almost natural discordance of the organs hath effected.

Nature and art succeed no farther in conquering maladies, than in proportion as they re-establish the order of action natural to each subject, or as they operate changes, upon which is established another kind of health different from the first, and which, in it's consequences, serves often as

§ See Recherches sur les glandes.

the foundation of another acute or chronic disease.

The cures of the first kind are perfect ones: they are very rare in severe and *complicated* cases; the compleat resolution of a small inflammation, or the perfect recovery of an inflamed part to it's natural state, is perhaps impossible; the most favourable termination of these grievous and *complicated* diseases, is only a cure of the second species.

It is upon these imperfect crises, that the greatest part of chronical diseases depend, which run through their periods more or less speedily, according to the nature, the place, and the degree of the change intervening in the order of the primitive health; it however happens sometimes, that a considerable acute malady seems to terminate so very favourably, that the patient finds himself afterwards more robust, more active than he was before; which proves, that the change performed
by

by that crisis has softened or encreased the spring of some organ, which proved to be the cause of the natural disorder.

But we must not always regard as a favourable termination, cures followed by a considerable augmentation of corpulency which, at the bottom, is oftener, a new state of malady, than the effect of a better state of health.

As to the time that chronical diseases may take up to pass through their divers periods, it is sometimes so long, that Hippocrates pretends to have seen some that lasted six years, others, whose natural course was over in six months, and some that run through their periods in two years ||. “ Many diseases, says he, are determined in children on the fortieth day, “ others on the seventh month, others in “ seven years *; there are maladies that

|| Hip. de acut. intren. cap. 52.
Child-birth at seven months.

* Idem, book on

“ are terminated, some by the day, others
 “ by the month, others by the fortieth
 “ day, and by years, or by the year †.”

ARETEUS has mentioned some chronical diseases, in which the revolutions or changes, are carried on, like those of an acute distemper †. BAILOU asked, if there were not diseases which *lasted seven years*, and others that *lasted a whole year* ||. *The crises are said, to be sometimes formed by months, and sometimes by years ¶.*

The following observations will serve as proofs of what we have just advanced, *viz.* That in the progress of the greatest part of chronical diseases, their cure, as well as in the acute, revolutions, and periods very important to be remarked; that these chronical diseases are scarce ever terminated otherwise, than by becoming acute; and finally,

† Idem, Aphor. 28. Sect. 3. † Aretus of long diseases, lib. 1. chap. 3. || Baillou consult 106. ¶ Du-laurens, on crises; and the thesis on the waters of Aquitain.

that the changes of the pulse indicate and accompany the revolutions of these diseases.

OBSERVATION CXXIX.

A SINGLE woman, consumptive at the age of forty-six, was subject from her infancy to obstinate coughs, and to bleedings at the nose; the menses, which appeared pretty exactly, have always disengaged the breast, without hindering, however, frequent colds, suppression of the voice, and slight disorders followed by a looseness and sweat; as soon as the menses diminished, the breast was more and more oppressed, until the spittle became very purulent, and the consumption was brought to the last degree.

It seems, that the natural, or more natural disorder of the breast, was a continual obstacle to health, during the whole course of her life, and that the obstructions that fomented this disorder, have always encreased.

OBSERVATION CXXX.

AN old maid had a cancerous tumour in her right breast; she declared, that from her youth there happened in that breast, in all revolutions of the menses, more notable changes than in the left breast; it swelled by degrees; and when the menses were on the decline, this tumour came to a supuration, and a slow fever was the consequence.

The weakness, or particular disposition of this right breast, had occasioned the tumour which ran through it's periods insensibly.

OBSERVATION CXXXI.

A MAN was seized with an apoplectic fit at the age of sixty; he had been subject in his youth to very violent head-aches, and swellings in his throat, to bleedings at the nose, to frequent coughs. He was sub-

260 INQUIRIES *concerning the PULSE.*

ject afterwards to violent cholics ; then to hemorrhoidal fluxes, and wandering pains in the kidneys and arms ; the hemorrhoidal flux diminished, and ceased entirely during the last years of his life ; the patient complained sometime before this attack, of a numbness in all his body, and principally in his head.

Though this man seemed to have a very good constitution, he had however, from his infancy, an habitual disorder, which conducted him gradually to an apoplexy.

OBSERVATION CXXXII.

A MAN who is consumptive at the age of thirty-five, had in his youth the jaundice, he was afterwards subject to rheumatic pains in his arms and legs, and to frequent colds ; there appeared about his eighteenth year a considerable wen in his face ; for this wen he was treated as well as for the other disorders ; it disappeared ; the patient seemed in good health ; he had fits of a tertian fever,

fever, which lasted several months, and returned several times in the space of three years; it turned to a quotidian; and afterwards it became continued; the breast was attacked, and the patient became pthifical.

This observation presents a series of disorders which have probably been only effects derived from the seeds of the primitive disease.

OBSERVATION CXXXIII.

A MAN of fifty-five falls into a dropfy; he had been during his youth subject to a jaundice, and frequent bleedings at the nose; to intermitting fevers, and to indigestion; the urine was often changed, being one while indigested and abundant, another while red, charged with a brick-coloured sediment, and in small quantity; some years before the dropfy, the patient was attacked with an inflammatory disorder in the liver, with a considerable fever, and continued in a kind of imperfect state

of amendment until the appearance of the dropfy.

The antients would not have failed to ascribe it to a natural defect in the liver, which had been making a continual progress during the course of his life.

OBSERVATION CXXXIV.

IT is not rare to see asthmas preparing their way for a long time, and terminating after a long continuance in a dropfy of the breast; or obstinate cutaneous diseases, produce at length ulcers in the lungs; or an old fluor albus, followed by dropfies, or the pthify, or gout and rheumatism, end in swellings, either of the breast, or of the viscera of the abdomen.

These facts, and many others of the same nature, which we might quote, prove that there are many chronical diseases produced chiefly by a bad constitution, original, or accidental of some organ, which
render

render very serious (causes slight enough in themselves,) and in fact, not at all dangerous with a better constitution.

The following observations will suffice to prove, that chronical disorders are almost always changed into acute ones, at their last period.

OBSERVATION CXXXV.

AN old rheumatism, without any apparent fever, in a young man pretty robust, and of a dry constitution; the mineral water of *Bareges* administered by way of bath and drink, encreased prodigiously his pains; the fever is evident towards the sixth day; they suspend the use of the waters; the fever continues 'till towards the fourteenth; abundant evacuations by sweat, stool, and urine, which were brought on afterwards, successively terminated the acute disease; the pulse which at first was *feverish, brisk, and uncritical*, became *excretory*, and indicated all these

264 INQUIRIES *concerning the* PULSE.

evacuations. Since that time the patient found himself quite cured of his rheumatism.

OBSERVATION CXXXVI.

MANY melancholic persons, after a long experience of the accidents usual in their condition, betook themselves to a course of mineral waters called *the hot waters*; the pulse was habitually *variable, irregular*, more or less *close*, *developped* itself very sensibly, became *brisk, frequent*, used to take on particular characteristics according to the disposition of the subjects; some have a discharge of blood by the nose; the fever increases in others, so as to require some bleedings; there are some, in fine, who have a kind of putrid fever, which, by means of appropriated remedies, is terminated by copious evacuations and abundant sweats. All these patients find themselves thoroughly cured; and several months after, they said, that they no longer felt any of those troublesome pains,
with

with which they formerly had been so long tormented.

Hence it appears evidently, that art, according to the precept of Hippocrates, turns an habitual and chronical disease, into an acute and plainly critical disease: this case gives room to suspect, that the chronical disorders which are believed to have been terminated in consequence of a treatment that, in the main, is only palliating, and does not excite a proper crisis, are not always well cured: such is the termination of many diseases, in which, for instance, the patient lives only on milk diet, or hath been treated only with composing remedies; ought we not to rank in the class this greatest part of acute diseases, treated by frequent bleedings, diluents, and anodynes?

Let us proceed to the observations which prove, that the changes of the pulse follow exactly, the periods and each particular species of revolutions that are observable in chronical diseases.

OBSER-

OBSERVATION CXXXVII.

WE find the pulse *hard, irregular, disordered, inconstant*, in all girls that have the green-sickness ; as soon as the menses come to be quite determined, the pulse is *developped*, becomes stronger and takes on the characteristic peculiar to the critical evacuations of the matrix ; it no longer preserves that smallness and closeness, peculiar to the state of the green-sickness,

We may observe similar alterations in the state of the pulse; in melancholy persons, who have a disposition to the hemorrhoidal flux ; sometimes before this flux is disposed to determine itself, the pulse is pretty near as in the green sickness ; it *develops* itself, and acquires strength, when the hemorrhoidal flux is thoroughly determined.

It is proved by many of the observations already related, that persons subject to sweats, or an habitual looseness kept up by a bad
chronical

chronical in disposition, have, when these crifises incline to be determined, the pulse peculiar to each of these excretions.

OBSERVATION CXXXVIII.

AN habitual pain in the fide, with an alarming expectoration in a girl, subject for three months to a defluxion on the breast: the pulse is *feverish, brisk, dry, irregular*; anodyne decoctions, and sulphurous mineral waters, increase the movement of the pulse; they *develop* it, and render it more *supple* and more *full*; it becomes afterwards decisively *pectoral*; the spitting is more abundant, and of a better sort; by little and little the breast is disengaged, and the pulse becomes again *supple* and pretty *equal*; some days after it becomes *inferior*, and indicates the menses, which had not appeared for three months; they come in fact pretty abundantly, and the distemper is happily terminated.

OBSERVATION CXXXIX.

A PERIODICAL inveterate megrim in a lean and dry subject; the pulse is always very *convulsive* at the beginning of the paroxysm; it is *developped* a little towards the second day; it becomes *hard, tense, unequal*, somewhat *putrid*, the patient vomited abundantly, and it often happens, that this vomiting is followed by some growlings, and slight pains of the cholic, in which the pulse becomes *intestinal*, soon after there ensues bilious evacuations in abundance.

But notwithstanding these evacuations, and probably on account of the habitual disposition the pulse remains as yet in the intervals of the paroxysms a little *hard, close*, almost *convulsive*, which evidently proves, that the crisis is imperfect; the patient takes purging-waters and hot baths: there ensues a violent fever, followed by abundant evacuations, with a pulse so strong and
so

so *develloped*, that it seemeth to have entirely changed its nature; since this crisis it remains constantly *free, supple, equal*, for several months, and he had no further returns of the megrim.

C H A P. XXVII.

On the complication of the Pulse of irritation with the critical Pulses in acute distempers, which terminate unhappily.

WE have already said*, that the *complication* of the pulse of *irritation* with the *critical*, occasions but few dangerous accidents, in maladies that are not of the bad kind; there is no invincible opposition in these maladies, to the *develloping* of the pulse, and to critical excretions; we shall see by the observations that are going to be related, how much this *complication* is more to be feared in diseases that are dangerous in themselves.

* See Chap. 25.

Upon a close survey of the nature and causes of such maladies, we have reason to presume, that they are usually *composed* of a certain share of the chronical and acute disease, grafted, as it were, on this stock of the chronical disease.

Besides, the difference in constitutions being productive only by the particular dispositions of the organs, and by the different relations of the action, which results from these dispositions, they may, for the most part, be looked upon as a kind of habitual malady, especially when we add to them, the effects of those excesses into which men fall but too frequently.

It is even very probable, that the greatest part of mankind's passions and tastes, principally, those that incline people to the improper regimen which they follow, and which they imagine they ought to follow, have their first cause in a disorder of the constitution, that makes it's progress im-
per-

perceptibly, and thus lays up a foundation of ill health, which it would be sometimes dangerous to undertake destroying entirely.

Persons thus disposed, cannot have diseases which run through their periods, as they do in bodies habitually healthy: we must, *a fortiori*, say as much of patients who have any obstructions, internal or external ulcers, habitual rheumatisms, old head-achs, asthmas, cholics, gouts, palpitations, tetterous dispositions, or who have already passed through maladies that have left impressions on any of the viscera.

We can quote here some phenomena that are often to be met with in regard to the menses in girls, who have not yet had them, and in women who are past them. The menses come easily enough in girls of a good constitution, and cease in due time, with little or no inconveniency; they are determined with great difficulty in girls, whose breast is affected, or who have
some

272 INQUIRIES *concerning the* PULSE.

some bad disposition in the viscera of the abdomen; the causes which oppose this first revolution, and which are often found to persist to the entire cessation of the menses, frequently throw such persons, in the one or the other of these circumstances, into very dangerous, acute diseases.

The *complicated* diseases that are to be treated of in the following observations, will shew how there result from them, *complications* of different kinds of pulses according to the nature, progress, and the events of those diseases.

OBSERVATION CXL.

A MAN of fifty, who had been for a long time given up to all kinds of excess, had in one of his legs a small ulcer, which opened and closed from time to time; he was seized with a continued fever with paroxysms, a pain in the side and spitting of blood; this malady lasted pretty near forty days; the pulse which continued

con-

convulsive during almost all the malady, was intermitting, from the third until towards the fourteenth: he was several times let blood in the arm, and they administered many light purges which had but little effect.

There came on towards the fourteenth, a spontaneous looseness of bilious matter; he had, at the same time, a purulent spitting, which was indicated, as well as the looseness, by the appropriated pulse; this pulse was always *complicated* with a considerable *irritation*; however the patient recovered his strength by degrees; there remained only a slight oppression of the breast; the ulcer in the leg did not open again.

This oppression of the breast becoming habitual, as well as the constant driness of the ulcer in the leg, were proofs that the malady had not been compleatly terminated.

The patient was attacked five years after by a like malady, with this difference, that the pulse was always in this last, *brisk, close, convulsive*; it *developped* itself from time to time, but not in a constant manner, one while it appeared *pectoral*, and another while *intestinal*. Many bleedings and many purges, administered according to such indications as could be seized on, had no happy effect. The patient died on the fourteenth day, without our having been able to find in the pulse any sign of a favourable crisis.

OBSERVATION CXLI.

A YOUNG man of a strong constitution, but somewhat melancholy, was, from his early youth, subject to pretty violent head-achs, and symptoms that generally accompany the hemorrhoidal fluxes. He had a continued fever, accompanied with a severe head-ach; the pulse became, about the end, very *rebounding* and *nasal*;
there

there ensued an abundant bleeding at the nose, with mucous excretions by the nose and throat, which terminated the malady: five bleedings, three in the arm, two in the foot, an emetic and four light purges which had preceded this critical evacuation produced no remarkable effect in the pulse; it persisted constantly somewhat *convulsive*; this obstinacy was probably the consequence of the cause which produced the head-aches to which the patient had been so long subject; the critical efforts of this malady could not entirely destroy the cause.

A year after, and pretty near the same season, this young man had a sickness pretty like the former; the pulse was always *brisk*, SMALL, *frequent, uncritical*, it hardly ever changed; and scarcely discovered some slight *reboundings*; all the different remedies that were employed never produced in the pulse any *sensible development*; the urine was during the whole course of the malady either abundant and limpid, or red without

276 INQUIRIES *concerning the PULSE.*

sediment and in small quantity; the evacuations were almost always serous; the head was attacked towards the fourteenth day: the patient remained two or three days in a kind of lethargy, after which he became paralytic in the right side: at length he died in convulsions; the pulse always continuing in the same state of *irritation* more on the right side than the left.

OBSERVATION CXLII.

A YOUNG girl had in her right ear a kind of oozing humour, which encreased upon the least disorder; she had a continued fever for which she was four times bled in the arm, thrice purged, all which was terminated by a gathering in that same ear; the pulse was *developped*, but preserved always the *stiffness* proper to the pulse of suppuration*.

* See Chap. 29.

Three years after, this young girl was married; she had after her first lying in a fever, whose principal symptom was a violent head-ach; in proportion as the pain diminished by the remedies that were administered, the oozing in the ear increased; there ensued afterwards a lethargic drowsiness, and the patient died, soon after, in convulsions; the pulse having always continued very BRISK, *irregular, convulsive, uncritical, somewhat developped*, and that only by short intervals.

The maladies that are the subject of the three preceding observations were COMPLICATED with former and perilous indispositions, which could not fail of producing a considerable obstacle to the liberty required for effectuating critical efforts.

OBSERVATION CXLIII.

A CONTINUED fever in a young man of a robust constitution, oppressed by a violent fretting, and kept to very bad food for a considerable time. The pulse is *brisk, small, close*, there appear some intermittences on the second day ; on the third the patient vomits naturally, and this vomiting is followed by some evacuations merely stercoral. Five bleedings and the use of laxative decoctions, don't *develop* the pulse 'till the sixth ; it seems then to rise a little : on the seventh the belly is swelled and stretched, the pulse becomes languid, seems *empty* ; he was again twice let blood, and took many oily potions which did not hinder the belly from becoming more stretched, and much more painful ; the pulse *closed* again, with an increase of the tension and swelling of the belly ; on the nineteenth the pulse was more *small, more frequent, more close*, and the patient died on that day.

Here

Here is an instance of a pulse that remained always *concentered*, *uncritical*, notwithstanding some changes which seemed to indicate an *intestinal* excretion. It is probable that from the impression made by the patient's vexation, and the effects of the bad diet, the organs did not find themselves in a condition of exerting a power sufficient to oppose the progress of the malady.

OBSERVATION CXLIV.

A CONTINUED fever of a bad complexion in a person very much addicted to wine and spirituous liquors. The pulse remains always *close*, *brisk*, *tense*, *convulsive*, tho' it has from time to time, some slight changes which seem to indicate a bleeding at the nose and a looseness ; but the *rebounding* is never *complete* ; the *intestinal* is always, when it appears, joined with the *convulsive* : at length the evacuations appear, but they are neither of a good quality nor abundant ;

280 INQUIRIES *concerning the PULSE.*

the patient died on the forty first day. He had been often let blood and took at proper times many purges and laxative decoctions; they at last applied blistering plaisters to his legs.

OBSERVATION CXLV.

A DEFLUXION on the breast in a patient of a weakly constitution. He had for near a fortnight a considerable looseness and a numbing pain in the right hypocondrium. There ensues a violent shivering, which was taken then for the beginning of the malady; the cough is frequent, the pain in the hypocondrium more violent, the pulse is *small, close*, a little irregular; between the second and fourth day the looseness is less, the cough less frequent, but the pain of the hypocondrium spreads over the epigastric region; the pulse is less *brisk*, less *close*, between the fourteenth and seventeenth, the pulse *develops* itself a little, and is *obscurely pectoral*; there ensues an expectoration somewhat encreased, frothy and bloody.

The

INQUIRIES concerning the PULSE. 281

The belly discharges less tho' the patient had taken a purge between the seventeenth and nineteenth, the pulse is more *tensive* and more close; the belly is puffed up and distended; the evacuations cease: from the ninth to the twelfth the pulse is *rebounding*, but with an evident *constriction*: from the twelfth to the eighteenth the pulse is *pectoral* and the expectoration is thick and pretty well concocted: towards the eighth the nose discharges a good deal of blood: towards the twenty first the pulse appears in it's *natural state*, like the pulse of an abscess *; the belly becomes more distended 'till towards the thirtieth; then there ensues a considerable swelling in all the right hypocondrium and at the same time in the cheek and foot on the same side: the pulse is *small, close, irregular*, and becomes somewhat *pectoral* particularly on the side affected: towards the thirty fifth the patient spits a considerable quantity of purulent matter.

* See Chap. 29.

This patient was blooded eleven times, purged nine, and made great use of looc with some kermes; the pulse was never perfectly *developped*, it appears that the obstruction in the liver or in its appurtenances, indicated by the pain of the hypocondrium and the looseness, was the principal knot of the malady; it formed a constant obstacle to the freedom of the movements of the pulse.

OBSERVATION CXLVI.

A DEFLUXION on the breast at the end of which the spitting was purulent in a lean and weakly woman: there remains an almost habitual cough and a slow fever, with slight paroxisms followed by nocturnal sweats: this woman became pregnant at that time. The accidents were so suspended that the patient appeared to be pretty well 'till the end of her pregnancy. The fever declared itself by a considerable shivering the second day after her lying in; the pulse
was

INQUIRIES concerning the PULSE. 283

was close, brisk, convulsive; she was then twice bled in the foot, which scarcely made any alteration in the state of the fever or of the pulse; she had scarce any discharge; towards the sixteenth the pulse seemed to become somewhat *pectoral*, and there was felt some difficulty in breathing without the appearance of any swelling in the breasts. This occasioned her being bled several times in the arm; in the intervals whereof they administered kermes and oily potions; all to little purpose, at length the patient spit a great quantity of purulent matter and continued consumptive.

The pregnancy might in this case have made a diversion of the suppuration of the breast or suspend it; the bad disposition of the breast, which persisted notwithstanding this diversion must have drawn on it's side after her lying-in, the greatest part of the action which was to determine the favourable consequences of the labour: it is for
this

this reason that the matter of the lochial flux threw itself on the breast.

C H A P XXVIII.

On the COMPLICATION *of the pulse in convulsive cases, nervous, or more nervous than humoral.*

IT is an acknowledged truth in Physick, that the greatest part of acute diseases, are produced by the suspension of the excretions of the different issues, and are terminated by evacuations more or less abundant. We know likewise that there are maladies wherein there is so much *driness*, so many *spasms*, so little matter expressed that they can only be attributed to the *sensibility* of the nerves.

It is on this sensibility that depend these two famous principles of the sect of the *Methodists*, the *strictum*, (constriction or bracing) and the *laxum*, or *loss of springiness* in

in the parts, as well as all that the moderns have advanced concerning the *tonical* movement, the *spasmus*, the *mobility of fibres*, *convulsions*, and *eretism*.

We must not expect to find in this sort of diseases, the progress, the course and the development of the pulse, which are only a consequence of the regularity, and of the constancy of the operations of nature; or, to speak more justly, it is evident that the concoctions, the crises and well conditioned excretions, can hardly take place in nervous diseases.

It is notwithstanding to be presumed that however irregular the symptoms of these diseases may appear, they have their causes, their effects and their fixed phenomena: and it will be probably by means of the reflexions proposed in the foregoing chapter that we may follow, distinguish, class, and estimate all these phenomena, too commonly looked upon as transient symptoms.

Whether

Whether there are in the body one or many obstacles in the different viscera or in the organs made to support and favour the action of the nerves; each of these obstacles ought to have its particular phenomena, in the different parts, in the different sides, in the different *departments* of the organs *; whether there is joined to these fixed and habitual obstacles, a more considerable disorder which occasions, for instance, the fever; this last fever will have it's progress, but it will be often interrupted and changed by the first obstacles, which don't cease to produce their proper effects; we might, perhaps decompound by this means the most complicated *nervous* diseases; but such examinations don't fall in with the design of this performance.

It is a remark of the utmost importance to be made, that by the side of these maladies that are *convulsive, nervous, and*

* See Recherches sur les glandes.

without *matter*, are found precisely opposite maladies, in which the obstruction of the excretory ducts are so considerable, and the different matters of secretion so abundant, that it is only by copious evacuations, we can expect to procure ease in these maladies †.

This is one of the causes of debate, or opposition, in the opinions of Practitioners. One party, attached entirely to the existence and the *phenomena* of *spasms*, think of nothing but to conquer them by gentle, anodyne, and humecting remedies; the other, emboldened by the success of violent remedies, don't fail to apply them in these cases where the critical movements of the machine are so confined, that they think they ought to have recourse to the most active medicines to reinstate the natural order of the oscillations.

† Vid. *Inst. medicin. sur les diagn. de ces maladies.*

All the nervous system is in a state of rigidity and *irritation* so considerable by the swelling of the viscera, by the *eretismus* of the stomach, by the stoppage of the skin as well as of other parts, that it is only by means of quick and reiterated concussions, and performed with strong efforts, that we can hope to stop the pernicious effects of these swellings; but it is on condition that they are *moveable*, “ There
 “ are maladies that appear *dry* and *crude*,
 “ not because there is not matter of which
 “ the excretion is to be made, but because
 “ the fever makes the body dry §”.

Here appears the triumph of strong emetics, of the most violent purges, of the remedies which are called the most heating; it is here we must say with Hippocrates, that *strong medicines carry all before them* †; these diseases are formed to dis-

§ Baillou Epid. 2. not 8.
 encycloped, 4 vol.

† Vid. the word crisis

concert the opinions of the antients, their slowness, their lingering *expectation*, their too implicit attachment to nature. We must however do them the justice they deserve, they acknowledge the use of these strong remedies; their attention to follow nature did not hinder their applying them, especially in diseases wherein they owned themselves that the virtue of certain days had no influence.

They spoke of these struggles wherein nature is conquered, or ready to sink under the efforts of the disease, if she be left to herself. One of their bleedings was worth many of those now in use; their purges were much stronger; and there are physicians among the sect of the moderns, who imagining themselves great enemies to the *expectation* of the antients, have however, been more timorous than they, and more submissive to nature, thro' the insufficiency and slightness of the small purgative potions which they are wont to administer *.

* See the last chapter.

But what skilful knowledge does not a physician stand in need of, to avoid mistakes about the diseases in question: Theory and reasoning are here very subject to stumble on the one side or the other; enlightened experience is the only sure flambeau that can guide the practitioner.

The pulse is, in these *nervous* maladies, almost always *uncritical*; it is but little *developped*; is very *close* on the contrary, very *convulsive*, and remarkably *variable*, *inconstant*, *moveable*, *unfixed*, very remote from that *tenor*, from that *ease*, from that *firmness*, which characterize the *critical* pulse. What is still more singular, is, that the pulse seems sometimes *critical* in those distempers, without being always followed by the evacuations which it indicates: this observation may be oftentimes reiterated in the convulsive maladies called the *vapourish*.

Baillou pretended “ that in the green
 “ sickness the heart is sometimes FOOLISH
 “ (*Fatuum*), and that there exists with this
 “ malady a sort of fever which it is im-
 “ possible to determine” § the green
 sickness is a kind of nervous malady; we
 may say as much of the pulse or of the
 fever in all other specieses of maladies of
 this class.

OBSERVATION CXLVII.

AN excessive melancholy in a young man
 of a seemingly good constitution; and who
 had applied himself closely to study for
 many years. Inconstancy, a lust for travelling,
 vivacity of passions, all kinds of complaints,
 without any fixed malady; his strength
 diminisheth sensibly in the space of two
 years; leanness encreases every day, is soon
 reduced to an absolute marasmus: the pulse
 constantly CLOSE, *brisk, unequal, more or
 less agitated, hard and convulsive.* The

§ Baillou consult 13 and au livre des maladies des filles.

292 INQUIRIES *concerning the* PULSE.

most appropriated remedies, to wit *aperitives, milk diet, mineral waters, riding, &c.* have no effect; the patient wastes more and more, by using them; he dies at length hectic, the pulse ceases not to grow *close, hard, weak, uncritical*, in proportion as all the evacuations become more *crude, more ferous, and less excrementitious.*

OBSERVATION CXLVIII.

A PATIENT who has had much vexation, is become so sensible, so delicate, so quick, that the least tickling, the slightest pain throws him into convulsions; a noise any way extraordinary, a seeming motion, the slightest passion, occasion in him suffocations, tremors, a kind of shivering; his pulse is habitually *brisk, uncertain, palpitating, close, convulsive.*

The pulse assumes very nearly such characteristics in many hypochondriac persons who are subject to vague pains, to wind, to a swimming in the head, that end by swellings

INQUIRIES *concerning the* PULSE. 293
swellings of the viscera, which neither
art nor nature can resolve, and whose ob-
stinacy is accompanied by the *convulsion* and
closeness of the pulse.

OBSERVATION CXLIX.

MANY girls in the green sickness have
their pulse *irregular, close, stifled*, very
variable and *convulsive* at the least movement
which they make. See observation 137.

It was remarked of four in this case that
their pulse assumed a degree of consistency,
tenour, and force, after their taking the
ordinary remedies; the pulse *develops* itself,
is slightly *rebounding, unequal, hasty*; it
indicates the menses, which appear in fact,
and always dissipate almost every habitual
infirmity; the pulse becomes, after this
excretion, *equal, supple, free, and pretty*
full.

Three women, between forty five and
fifty, are on the point of losing their
menses; their pulse is *irregular, convulsive,*
U 3 *hard,*

294 INQUIRIES concerning the PULSE.

hard, not much dilated during many months successively ; it becomes at length *calm*, *gentle*, *softish*, pretty *full* when the menses cease appearing ; the pulse partakes of the tranquility of the matrix, whose excretion was so differently active, as can't be deduced from the simple plethora, whether general or particular, and so much celebrated in the schools *.

A woman of forty six, has been for a long time subject to shiverings and head-aches ; she is always agitated ; the pulse partakes of this agitation, it is in a continual *uncertainty*, its movements are *irregular*, the *artery is in a very tensive state*, there ensues a gathering in the ear after the use of a great quantity of appropriated remedies ; this gathering is followed by signs of suppuration, and when this suppuration is performed, the pain and the weight in the head, as well as the agitations, disappear ; the pulse becomes *calm*, *equal*, *softish*, *full*.

* Vid. les Recherches sur les glandes.

OBSERVATION CL.

A FIRE breaks out in a house where are two women in the time of their menses, they are exceedingly frightened. One has a very abundant flux, and the menses are suppressed in the other with frightful convulsions: the pulse is very *brisk* and very *close*, in one and the other, but more in her whose menses are suppressed; the pulse indicates slightly an evacuation of the menses in her who has had the flux; there are perceived some slight *reboundings* thro' the contraction of the artery: time at length with some small assistance, allayed these accidents, the pulse resumed its ordinary *tranquility* in both.

OBSERVATION CLI.

A DEJECTION and extraordinary lowness of spirits, with a total loathing of life, in a man who has had some vexation; he falls into a languor, and a visible wasting, he becomes emaciated and weaker every

day, he loses his appetite, the pulse becomes *small, close, hard, almost insensible* nothing can *develop* it, this patient dies without ever having in the pulse signs of any *critical* evacuation; he fell insensibly into a complete marasmus.

OBSERVATION CLII.

SHIVERING, trembling, and vomiting in a man, who for some years had scarcely drunk any thing else but brandy, and who had suffered much vexation; to this shivering succeeds an acrid heat, with a general dryness of the skin: the tongue was extremely dry and nothing could moisten it; the pulse appeared hardly to be feverish; was *obscure, small, close*; reiterated bleedings, emetics, diluents, sweetners, and composing medicines of all kinds; even blistering plaisters don't procure any *development* of the pulse; it scarcely becomes a little *stronger*: but it remains still *hard*, and in a state of *tension*; some *reboundings* are observed towards the ninth day of the distemper

distemper: there appears a little bleeding at the nose on the eleventh: the head is attacked after a bleeding in the foot; convulsions ensue, the legs and arms are extremely stiff; the belly swells, and is without feeling; the patient dies on the fourteenth, notwithstanding eight bleedings, emetics, several apozems, the kermes, four or five purges, blistering plaisters, ptisans, whey, oily potions; the pulse had been still on the *decline*, and loosing of its *consistence* from the beginning of the disorder, especially since the last bleeding applied in the instant, when it seemed determined to become *critical*§.

§ See Chap. 33. concerning the action of remedies on the Pulse.

C H A P. XXIX.

On the complication of the pulse in suppurations after acute diseases.

WE must not imagine that gatherings, or suppurations subsequent to acute diseases, are always the effect of neglected maladies: and that bleeding, purges, alteratives, and evacuating medicines can prevent with success gatherings of this kind.

Observations well made, well examined in all their circumstances, demonstrate three dogmas very opposite to those kinds of vague assertions founded on a theory, that imposes daily on those who have no experience.

The first, that it is sometimes impossible, let practitioners do what they will, to avoid a suppuration.

The

The second, that it is sometimes very dangerous for art to attempt hindering a suppuration which nature has prepared.

The third, that it is on the contrary very expedient, in some internal maladies, that art should confine itself to help nature to determine a suppuration, or a gathering of purulent matter.

Reason and experience herein agree ; for in fact, whether a part of the body feels so affected of itself, that the suppuration must necessarily be formed there ; or that an irregular crisis tends that way ; it is evident that the disposition of that part can not always yield to the effect of remedies which seem at first the most appropriated.

This disposition is usually an impression made on the part very anterior to the malady ; it produces a weakness therein, or an irritation ; it gives it a modification
proper

300 INQUIRIES *concerning the PULSE.*

proper to determine the critical effort of the malady almost necessarily to turn it's course that way.

What has been or can be alledged in opposition to these truths, which it is sufficient hereby to propose without labouring to support them by a detail of useless proofs? Why truly an excessive confidence in rules too generalized: *bleedings, say they, must necessarily disencumber the overcharged vessels; evacuating remedies must carry off the matter of the gatherings; alteratives must attenuate, dilute, edulcorate the humours, and destroy, by degrees the obstructions that choak up the ducts, and capillary vessels.*

But do these very remedies always perform what they *should* do; does not their action even that of the most efficacious, suppose, in order to obtain a successful event a favourable concurrence on the part of organs?

With

With such axioms we should find no more maladies incurable in their nature; we might always confidently propose to *disencumber, dissolve, evacuate*; this is the natural consequence of a theory too universal and held in too high an estimation.

This theory had induced some physicians of the last century to imagine that it was possible to prevent or render abortive the small pox, by means of *diluting, evacuating* and *alterative* medicines. According to them these remedies could, nay ought to destroy the matter of the small pox, or direct it towards the general outlets of *the human frame*. The small-pox is nothing but a *general inflammation*, said they, a malady *eminently inflammatory*, and which tends to suppuration: we have nothing then to do but to hinder this suppuration.

These physicians reasoned very consequently to their principles; and supposing it had been possible to have accustomed
the

^the small-pox to their method they would have done so, (if I may be allowed to make use of that figurative expression) whereby they had but too well succeeded to give a kind of vogue to puerile ideas and rash undertakings.

But it is now an opinion pretty generally received, that there would be much more danger in exhausting, by a course of remedies, the strength of persons who have not had the small-pox, than any likelihood of being able to prevent their having them: it would be still more dangerous to endeavour to make them miscarry when they are disposed to appear: we may easily establish a comparison between the small-pox and the greatest part of the maladies subject to suppuration.

Such is, to mention it by the by, the subtle pleading of the above theory, or to speak more properly, the inconsistency of what it teaches, that many persons at this day look upon the greatest part of the means
which

which had been thought proper to prevent the small-pox, at least as very useful and even necessary to make the small-pox more easy in its eruption, more benign in its progress, and be more critical.

Some of the partisans of *inoculation* do not cease to publish that *we should prepare* the subjects before they are inoculated; they pretend too, that one of the great advantages of *inoculation* is to be able to *prepare the patients*, that is to say to *cool* them, to *purge off the bad humours*, to *abet perspiration*, to *open all the ducts*, to *dilute the blood*, to *sweeten it and make it more fluid*.

It will be permitted me to advance, without taking any part in the dispute, that the real *value* of the *preparations* does not appear exactly enough determined; we can't say very precisely what must be done in *preparing* or in order to *prepare* them, whence there are consequently, very lawful suspicions to be formed as to the advantages of the preparations; many people however
speak

ſpeak highly of theſe pretended advantages ; and draw from them arguments leſs ſolid than they are ſeductive in favour of inoculation.

Let us return to what more particularly concerns ſuppuration, as the ſequel of acute diſtempers ; it is either critical or ſymptomatic, or both at the ſame time ; it is ſometimes neceſſary, and even inevitable, conſidering the peculiar diſpoſition of the patient, or elſe it may be poſſible to avoid it by turning off thro' the agency of appropriated means, the diſpoſition which may tend to produce it.

The condition of that part wherein a ſuppuration ſeems to be preparing, deſerves a particular attention ; if it is an organ that has excretory veſſels we may flatter, ourſelves to a certain degree, that they will afford a paſſage to the matter of the ſuppuration : if this part be not an excretory organ, or if the ſuppuration is formed very deep in the texture of the organ, it is, without

without doubt, more dangerous: if the part affected is external, it is a great advantage; but a great misfortune if it is internal.

The suppurations in the brain, those in the substance of the liver, those of the external parts of the intestines, are, as every one knows, much more to be feared than the suppurations of the glands of the throat, of the lungs, of the matrix, of the kidneys, of the interior part of the intestines: the abscesses that are formed in the extremities are almost ever the most favourable.

Therefore, were we as well assured, as we are far from being so of the efficaciousness of the proper means of preventing a suppuration, the abscesses that seem disposed to make choice of a favourable situation, ought not to be treated in the same manner as those that threaten the parts essential to life. The precept that would tend to prevent them all, and destroy such

as already begin to be formed, would be too general.

It is well known, what a sudden relief results from those gatherings that are evacuated by expectoration, by urine, or by the intestines, &c. it would be going directly contrary to experience, not to expect a critical and timely assistance from the action of those excretory vessels; thus, far from desiring to turn off always a critical gathering, which seems determined to form itself in these parts; we must, on the contrary, promote it sometimes.

As for abscesses in the viscera that are not provided with excretory vessels, the brain, for instance, it is certain, that we should employ every means proper to avoid them, without risking, however, to destroy the strength of the patient.

But it rarely happens, that the disposition to an abscess in the brain, manifests itself evidently enough, to establish indications

tions of a method proper to prevent them to prevail over the necessity of supporting the strength of the patient. It is no easy matter to ascertain, that *one has stopped a gathering that was forming in the brain; or that this gathering, already formed, has been carried off by the assistance of art.* They who are continually repeating such boastful declarations, would often find themselves very much embarrassed, if they were put to prove the truth of them.

There are many cases, where the patients are very happy that the abscesses are formed in the exterior parts; it is much more safe in such circumstances, to assist a suppuration, than to endeavour a resolution, or a *resorption* of humours always dangerous and of uncertain event.

People, in general, reason very plausibly concerning critical abscesses: they say, *that there are fewer of them to be seen at present, than were in the time of Hippocrates, and that they don't happen, but in*

308 INQUIRIES concerning the PULSE.

Such patients as refuse to take physick. But is it quite certain, that there are, in fact, fewer purulent abscesses, at this day, than there were in the time of Hippocrates, in the maladies of that very species Hippocrates has given the history of? If a physician were to make an exact collection of all the observations that are made in a country for many seasons; if he were to make, for instance, a journal of all the abscesses that happen in the hospitals of Paris, he then might see, that there are many more than some practitioners seem disposed to believe.

There is no physician that would not make an open profession of his *inexperience*, who should acknowledge, that he has not seen abscesses in almost all the parts of the body, and that they have appeared, pretty nearly, in the same manner as those Hippocrates mentions.

Though it were even true, that there are some abscesses, which it were possible to prevent successfully; it would not be less
certain,

certain, that such cases are very rare: a rule of practice founded on cases so uncommon, could not fail of being attended with great and frequent inconveniencies.

We see every day, patients thrown into the greatest danger, or who recover but very slowly, through the precautions taken against abscesses; on the contrary, a critical abscess, managed properly, spares a great deal of physick, and procures a speedy and sure recovery.

Be that as it may, every thing concurs to prove, that internal maladies, subject to suppurations, ought to be ranked in the class of those that are composed of an acute and chronical disease; that is to say, that the place where the gathering is formed, is a place hath been affected for a long time: *maladies of a long standing are accustomed to terminate by abscesses* *: we shall see in the sequel, that there are maladies so cruel,

comment. des Epid.

310 INQUIRIES concerning the PULSE.

that there is not even room to expect a resource from purulent abscesses†.

The history of the critical signs drawn from the different movements of the pulse, will be of no small service to fix the indications that we must steer by, in these maladies, when they incline to purulent abscesses.

If the pulse has been at the beginning *convulsive, uncritical, and develops itself a little, with a considerable stiffness in the artery, and if it remains for some days in that state, we then must fear a suppuration.*

When the suppuration has already commenced the pulse fluctuates, as it were undecided, between the critical and uncritical. It is critical in as much as being developped, it indicates that the irritation is diminished; it is uncritical so far as it does not indicate

† See Chap. 30.

any of the outlets whereby the ordinary crises are performed.

If the pulse comes insensibly to indicate a critical movement towards any duct, or if it becomes, for instance, pectoral, or intestinal, we ought then to presume that the corruption will be discharged by the organs whose action the pulse indicates: we must observe this event with the greatest attention, in order to assist it seasonably.

There are pulses of *suppuration*, complicated with the pulse of *irritation*, and then the malady enters into the class of those that have been described in chapter twenty six; they are suppurations partly critical, and partly *symptomatical*: we must stop, if possible, the *symptomatical*, but encourage the *critical*.

Let us pass to the examination of the three propositions advanced in the beginning of this chapter.

First, *It is sometimes impossible, let us do what we will, to avoid a suppuration.*

OBSERVATION CLIII.

A GENERAL swelling, pain in the side, but of a long standing, to which is joined a continued fever, in a young man addicted to every kind of excess: the symptoms don't diminish upon the use of commonly prescribed remedies, entered upon on the fourth day; the pulse becomes constantly more *tense*, more *hard*, even more *strong*, notwithstanding twenty-eight bleedings in the arm preformed in near twenty days; the patient spit corruption after all these bleedings: he took decoctions, and often times gentle purgatives, which produced scarcely any evacuation; he spit so abundantly, the pulse having become a little *pectoral*, that it seemed as all the matter of the swelling passed through his breast;

* See Chap. 32.

he was extremely weak towards the thirtieth; the pulse becomes a little *convulsive*, the swelling appears again in his legs and wrists; he dies about the fortieth day, spitting at the end great quantities of foetid and bloody matter.

OBSERVATION CLIV.

ANOTHER malady, pretty near of the same kind, in a young man subject to considerable colds, and who, for five days had been swelled in all his body, with a fever, pain in the side, cough; thirty-two bleedings, many decoctions, and kermes administered for the space of thirty one days, did not hinder a purulent abscess in the lungs. The patient still spit corruption, and was in a marasmus towards the forty-first day, the pulse being always *hard*, scarcely *developped*, *convulsive*, *hurried*, *uncritical*, which it seems ought to be attributed to a bad disposition of the breast, partly natural, and partly contracted by the colds

colds whereby it had been frequently affected.

OBSERVATION CLV.

A YOUNG woman of twenty-three, had a strong constitution, became, after meeting with much vexation, pale, irregular in her menses, subject to wandering pains, principally in her legs and thighs; she fell into a fever, with a stitch in the side, but not very painful towards the right hypocondrium; the fever was pretty brisk: the patient was bled from the beginning, bled nine times, purged three or four times, she took kermes and decoctions of all kinds, which continually kept the body open; the matter was not bilious, the urine was crude, the pulse *uncritical, close, and hard*; the malady appeared, however, to abate on the fourteenth; but as there remained a little fever, and as it augmented towards the twenty-first with a return of the pain in the side, she was bled the tenth time, the patient was repurged, she
thought

thought herself recovering towards the twenty-eighth, she got up the twenty-ninth and thirtieth: the thirty-first, as she was taking a turn in her chamber, she felt suddenly a sharp pain in the thigh and right leg; there ensued in less than a quarter of an hour a considerable swelling from the groin to the foot; they applied a ripening plaister, and a little while after, they made an issue for the matter by means of a caustic; it discharged a great quantity of corruption, and the patient was cured on the thirty-fifth day after the formation of the abscess.

It must be remarked, that this crisis came on at the time her menses were expected*; they did not then appear, nor the month following: with this farther singularity, that at the end of this latter, pretty near, the left leg swelled almost as suddenly as the right had done in the former month; but this left leg did not come to a suppuration.

* See Chap. 32.

OBSERVATION CLVI.

A GIRL of a very good constitution, young, and who had a suppression of the menses, for three or four months, felt, since that time, a constant pain, but not very considerable, on the right side, in the interior part of the muscles of the buttock ; they employed the most appropriated internal and external remedies ; at length, the patient was bathed in a bath of hot mineral water ; after the fourth bathing the pain encreased so much, with so considerable a tension of the pulse, that they employed in a short time five bleedings in the foot with little success ; they did not cease to relax the body and employ all kinds of ordinary remedies ; notwithstanding which, the buttock came to a suppuration towards the twenty-first : they made many incisions and the patient died towards the thirtieth ; the pulse having never *developped* itself but slightly.

OBSERVATION CLVII.

A PLURESY in a man of a strong and dry constitution, forty years old, who had applied himself to excessive hard labour, and who had had an uneasiness of mind for some time: he had proper assistance from the second day; the fever and pain in the side did not yield to eleven bleedings performed in nine days; there was corruption in the spittle from the eleventh; the fever, as well as the pain in the side, encreased towards the fourteenth; he was again blooded twice in the arm; they continued employing all ordinary diluters, both expectorating and laxative: there appeared towards the twenty-first a tumour in the place where the pain in the side had been felt; this abscess broke by means of an appropriated plaister; one of the ribs was cariated; the patient continued in a slow fever; they, however, brought the wound to a cicatrice by a long course of internal and external balsamic remedies, and the waters of Bareges; the pulse was *developped* by intervals.

OBSER-

OBSERVATION CLVIII.

A MAN of near fifty, dry, bilious, subject to considerable rheumatisms, had a continued fever which seemed almost equally to affect the head, breast, and belly; the pulse, although *developped*, from time to time, was almost always *uncritical*; he was bled fifteen times in the arm, or foot; they employed many laxative decoctions, most part of which were quickened with emetics: all that did not hinder a considerable abscess of purulent matter being formed in the right thigh, the ordinary seat of his rhumatic complaints; this abscess was opened, and was not brought to cicatrice 'till two months after the opening: the patient was in a state of extreme weakness, and was not yet rid of his fever on the ninetieth day of his illness.

OBSER-

OBSERVATION CLIX.

AN abscess in the brain, in a patient who had a kind of habitual stoppage in the nose, and who was attacked by a considerable continued fever. Thirteen bleedings in the foot, two in the neck, could not prevent this abscess, found when the body was opened.

An abscess in the bowels, and spread throughout the cavity of the abdomen, in a young man : a year before his illness he had made a considerable effort, which had principally born on that part : this illness was a continued fever, with a pain in the bowels ; they employed, without delay, thirteen bleedings, had recourse to diluters and usual laxatives, but without any success ; there was formed an abscess in the belly, between the mesentery and intestines ; the patient died on the nineteenth day.

We should never end, were we to relate all the observations which daily practice furnishes concerning suppurations in dangerous maladies: these abscesses are particularly very common in ill-constituted bodies, or such as have been formerly affected; they cannot be avoided by the treatment, the most conformable to the rules of common theory.

It is therefore incontestable, that remedies don't always hinder abscesses in acute distempers: we may justly reply to such as pretend to defeat all abscesses, by bleeding and other succours of the art, that they confound simple and slight diseases, with dangerous and complicated ones, and that they imagine to have prevented abscesses, in cases where the malady was not susceptible of taking that turn.

Secondly,

Secondly, *It is sometimes very dangerous for art, to undertake to defeat a suppuration which nature is preparing.*

OBSERVATION CLX.

A PAIN in the side, continued fever, in a soldier, who, the year before, had a quartan ague, which had been treated by a long course of quinquina: he was not bled 'till the fifth day; there appeared on the sixth a circumscribed tumour, near the last ribs of the left side; this tumour was hard, painful; a suppuration was feared: the pulse was slightly *pectoral*, but in a state of decided *irritation*: the patient was thrice bled the same day; the fever was not diminished on the seventh; he is again thrice let blood, which does not hinder the progress of the tumour: the pulse becomes more and more *irritated, convulsive*; he is again thrice let blood, and towards the eleventh, a swelling on the inside of the thigh on the same side appears, the o-

322 INQUIRIES *concerning the PULSE.*

ther swelling still subsisting without any diminution: the pulse became *irregular*, and continued *close* and *convulsive*: in order to resolve this new tumour, he was again twice let blood: the patient becomes weak; the two tumours make no progress: the patient spits corruption on the twenty-first, the pulse having rose a little, and *developped* itself: from that time to the thirtieth, the swellings of the side and the thigh opened themselves naturally; they discharge much corruption, there is found some even in the urine; a diarrhæa follows, the breast swells, as well as the face and feet, the pulse has no longer any consistence, it is *irregular*, *weak* and *close*; the patient dies towards the fortieth day, with three ulcers, one in the thigh, another in the side, and a third in the lungs.

OBSERVATION CLXI.

TWO tumours in the parotid glands, coming on towards the eighteenth day in malignant fevers, against which, all manner of remedies had been employed: one
of

of these tumours was in a woman of forty, who had not yet lost her menses, the other in a thin, dry man, and whose breast seemed somewhat affected by this last malady.

The pulse, which had been *irregular, convulsive*, scarcely *developped*, during the whole course of their maladies, *developped* itself, became *superior* and more feverish than it had been at the first appearance of the tumours; they drew from this augmentation of the fever, the indication of bleeding in the foot, which was performed on both the patients, and they kept up the wished effect of this bleeding, by purgative decoctions, emollient and resolving poultices, 'till towards the twenty-sixth.

The tumour grew horney and diminished, without entirely disappearing in the woman: the pulse became *convulsive*, the head was attacked; they bled her again in the foot, the head was disengaged, and the tumour encreased afresh, not without some revolution of the pulse, which seemed dis-

324 INQUIRIES concerning the PULSE.

posed to *develop* itself, tho' it remained *concentered* and *unequal*: the belly still discharged copiously; the tumour came to a *suppuration*; it was found necessary to open it; but it was above two months before it cicatrized; the woman remained weak, lean, low-spirited; she had a slow fever towards the tenth day, and had not yet had her menses since her malady.

The tumour disappeared in the man, the pulse became *close*, and grew *hard*, the breast swelled; the head was attacked; the belly swelled and became very painful, and the patient died on the thirty-first; the pulse always continuing very *small*, and exceeding *low*, having never resumed the vigorous spring, which it had before the last bleeding.

OBSERVATION CLXII.

AN abscess that appears in the right region of the loins on the seventh day of a putrid fever, in a bilious patient, who had
been

INQUIRIES concerning the PULSE. 325

been often subject to feverish attacks: the pulse was constantly *convulsive*, but not much *developped*: he has been already blooded six times, they bleed him again, and reiterate the operation to eleven times, in order to avoid the suppuration of that exterior tumour; they don't observe, in fact, any fluctuation in it towards the fourteenth, and towards the twentieth all the thigh on the same side swells, though the evacuations had been very abundant: the pulse, instead of *developping* itself compleatly during that time, never ceased to become *close*, *weak* and *complicated*; abscesses appear on several parts of the thigh, towards the thirtieth; it was necessary to make many counter-openings; the tumour in the loins comes to a suppuration at the long run, and the patient dies afterwards of an abundant suppuration.

OBSERVATION CLXIII.

A PUTRID fever after lying-in: the lochia are suspended, the pulse loses it's

326 INQUIRIES concerning the PULSE.

critical disposition after a shivering, which the patient had on the fifth day; the foot and right leg swelled on the ninth; recourse was had to all the usual remedies to resolve this swelling: bleeding was much insisted on, on account of the increase of the fever, which was nothing else but the *devellopping* of the pulse compounded, it is true, with a state of *irritation*; the abscess almost disappeared towards the twentieth; and on the thirtieth, the patient spit blood and corruption: the pulse continued in a considerable state of lowness or weakness, which was construed into a diminution of the fever: there supervened a pain in the matrix, which discharged, a long time after purulent matter; the patient laboured many months under a slow fever, and never could recover her strength.

It would be an easy matter to cite many singular observations, in which a suppuration established in one of the extremities, would have, probably, disengaged and screened all the internal parts. We have
seen

seen women, in whose constitution an astonishing change has been brought about after abortive suppressions of their milk : sharp cholics, fluxes, slow fevers, a state of habitual spasms, irregular movements in the nerves ; such are the frequent consequences of those forced resolutions, while often times, a very inconsiderable suppuration might have prevented such disasters.

It is, therefore, prudent, never to have any thing in view but the resolution of abscesses in acute cases ; it is, on the contrary, of great importance, that *in certain internal maladies, art should entirely confine itself to assist nature, to determine her to a suppuration of the purulent matter.* This is the third proposition which was to be examined, and is the necessary consequence of the two first.

Whereas, the formation of a critical abscess of the purulent matter, has a strong affinity with what the Antients call, *the*

328 INQUIRIES *concerning the* PULSE.

concoction of the disease: yet, it appears, by assembling all that they have said of the characteristics of this *concoction*, that it was oftentimes nothing else but a species of suppuration; and there is no very great difference between the critical expectoration of concocted putriform matter, and a real suppuration: nay, we may form, pretty nearly, the same judgment of other critical excretions, which terminate the greatest part of acute maladies of any considerable standing *.

We shall now add something to what has been already said concerning the pulse of suppuration.

When the suppuration is formed, the pulse changes, the fever abates, “when
“ the pus is forming in a part, the pains
“ and the fever are more considerable than
“ when it is formed †. The formation of
“ a suppuration dissipates the accidents ‡.”

* Vid. le Traite des fièvres de M. Quesney. † Hip. Aphor. 47. Sect. 2. ‡ Galen. Comm. on the book of the manner of living.

There

There are therefore, two principal periods to be considered in the suppuration, that wherein it is forming, and that when it is already formed; there are also two states of the pulse very different from each other in these two periods.

We find, besides, a third state of the pulse of true suppurations, or abscesses of purulent matter; which must be distinguished with care; it is that indicatory of the effort by which the matter is directed towards some excretory organ.

The pulse of *irritation* is always joined to the beginnings of a suppuration, and accompanies, through all their stages, symptomatical suppurations; this pulse is, therefore, a very bad prognostic, if it lasts longer than the time that is necessary for the revolution which excites or disposes the movement of the favourable or critical suppuration.

The

The *developped* pulse, which, when *thoroughly decided*, is essential to every good crisis, is the principal sign of a suppuration, whilst it continues, for a considerable time, and at several intervals, without being joined to any species of pulse that indicates excretions, provided it be *strong* enough, and joined with a remarkable tension of the artery.

Therefore, whenever in serious and complicated cases, of subjects formerly ill-disposed, we find (the malady being in an advanced state) a renewal of *irritation* in the pulse, followed by a *difficult or confined development*, and that said state of *development* continues for a certain time §, without being joined with any kind of *excretory* pulse; we ought almost always to expect a suppuration. It will be by so much the less critical, as the *development* of the pulse shall be less compleat, and the oftener subordinate to the pulse of *irritation*.

§ Vid. Chap. 33.

If it happens, that the matter of the critical excretions is thrown upon some part unprovided with excretory ducts, therein is formed an abscess : the pulse that precedes the formation of this abscess, is pretty near alike to that which precedes every concoction, to wit, the pulse of *irritation*. The pulse that is joined to the almost compleat formation of the abscess, resembles very near the *developped* pulse, and is even not *feverish*, many times.

The pulse that indicates an abscess is going to discharge itself by some excretory duct, is that which appertains to the particular species of the excretion that is preparing ; thus the expectoration of corruption, at the end of an acute disease, is preceded by the *pectoral* pulse, more or less *complicated* ; the same may be said of the other issues.

But it often happens, that the matter formed discharges, or throws itself
into

332 INQUIRIES *concerning the* PULSE.

into some cavity, or that it accumulates to form an abscess at the same time, that is to say, that the formation and evacuation of the matter is combined, or mixed with each other. The pulse of the suppuration is then *complicated* with that of *irritation*, and with the different kinds of *excretory* pulses.

C H A P XXX.

On the Complication of the Pulse in the Malignant Fever.

IT is not the same with malignant fevers as with other kinds of fevers: there is here no constant course; every thing indicates a *discordance* and general uncertainty. This fever sometimes conceals itself under the appearance of a simple disorder: one while it imitates, or acts, if one may use that expression, the most perfect health: one while happy crises seem to present themselves, which are the more dangerous when they appear the more favourable;

vourable. In a word, a malignant fever is an indigested assemblage of almost all maladies and possible disorders ; it contains the seeds of every kind of dangerous symptoms ; it is a discomposure resulting from that of the greatest part of the organs ; it is a most acute fever, and the consequence of several chronical diseases.

The great number of symptoms, oftentimes opposite, don't depend upon one and only cause ; and therefore all the systems on the causes of maladies, may find their application in the malignant fever ; this disease furnishes arguments to all sects, and none can exactly fix it's nature ; we must, therefore, in order to form a compleat idea of it, make a mixture or combination of all the particular manners of considering ordinary maladies.

Convulsions, driness, spasms, wandering pains, defects of secretion, and of any fixed course, are certain indications of the manner wherein the nervous system is attacked

334 INQUIRIES *concerning the PULSE.*

tacked in a malignant fever ; this malady is one of the most *nervous* considered on that side ; but there is in it something else besides spasms, or the oscillations of the nerves being disconcerted.

Those who, in the examination of the causes of grievous diseases, attach themselves only to consider the state of the brain, find, therein, wherewithal to support their opinion ; drowsiness, delirium, bleeding at the nose, swelling of the vessels, and extravasated blood found on the opening of the body, furnish them with very plausible arguments ; but a person who has received a blow on the head, whereby the brain is hurt or compressed, has no more, than hath a person in an epilepsy or madness, a malignant fever : there is something else in this fever more than the brain's being affected.

The tension of the belly and epigastric region, the inaction or irregular movements, and extreme sensibility of the bowels ;

bowels; the vomitings, diarrhæas, symptoms almost inseparable from the malignant fever, without doubt, prove the former parts being affected: there is however, something else besides this affection: a patient, who has an inflammation in the belly, a bilious or convulsive cholic, a cholera morbus, has not for that the malignant fever.

We must say as much of the affections of the breast; maladies of the throat, convulsions of the diaphragma, irregularity or difficulty of respiration; every thing manifests the disorder of the breast in a malignant fever; but this fever does not exist in a simple defluxion on the breast, and in other maladies of the parts contained in this cavity.

Those who look upon the obstructions of perspiration and the disorders of the skin as the cause of almost all maladies, may also support their system by the history of the malignant fever; the dryness and
burning

336 INQUIRIES *concerning the* PULSE.

burning heat of the skin, irregular sweats, eruptions of every kind, dispositions to the erisipelas and even to tumours which are so many symptoms of this fever, demonstrate an obstruction of the entire *cutaneous organ*, but this part may be affected by many of these accidents without their supposing a malignant fever.

It is evident, that the system of the *Humourist* is no where so plausibly applied as in the explication of many of the symptoms of this fever; the dissolution of the blood, it's coagulation, it's vicious mixtures, are a necessary consequence of the suspension of the excretions; the matter of perspiration, bile, urine, retained in the blood of those that have a malignant fever, cannot but alter and discompose the liquids, and give occasion to all the depravities of which they are susceptible: however, the maladies that seem to depend most on these different vices of the liquids, such as the jaundice, dropies, reflux of milk, are no
more

more malignant fevers, than ordinary cachexies are.

It is therefore with reason, that the malignant fever ought to be looked upon as the foundation of many maladies joined together: a patient attacked by this fever thoroughly characterized, has, at the same time, the brain embarrassed, the nerves deranged, the humours altered, ill-combined; he has every kind of disorder which can be the cause of several maladies of the stomach, of the head, and other parts; he is, to use that expression, in the state that might constitute an *acute scurvy*; all the ducts are choaked up, all the vessels are unequally swelled*.

For in fact on opening the bodies of persons dead of a fever truly malignant, we discover all the bowels mortified, bruised, ready to enter into a state of putrefaction, like the flesh of an animal which has been

* Vid. Inst. Medicin. pag. 85.

338 INQUIRIES concerning the PULSE.

hunted: and indeed the malignant fever thoroughly characterized is often nothing else, if we may so express ourselves, but a prolonged agony; it is an almost total derangement of the animal œconomy: a kind of delirium of nature and the most dangerous rock of the art.

The inflammation which is generally made the chief object of treatment in a malignant fever, is far from appearing as dangerous as other symptoms of this disease; it is true it is sometimes joined to the rest; but an inflammatory or burning fever is quite distinct from a malignant fever; perhaps even the inflammation is a kind of resource in a malignant fever, whether there be a *suppuratory* swelling fixed on some particular part, or that the inflammation is general, and as we say, in the blood; it is by its means that nature and art sometimes get the better of this cruel malady, as will be remarked in the sequel of this chapter.

It is therefore natural to think, that the malignant fever is frequently preparing itself at a great distance, and that it is only the product of several disorders or little maladies that have been neglected: they take a great deal of time to make their progress, they burst forth at length, and combine themselves so as to produce pernicious effects, by attacking life on all sides, and in sapping all its foundations.

A constant state of vexation, excessive fear, or application of mind, a long continuance of painful exercises; all that gives by degrees to the nervous system a certain degree of tension and *sensibility*, which makes it lose the suppleness necessary for its functions; all these occasion an infinite number of obstacles to the freedom of the secretions and excretions, &c.

It is by means of such dispositions that many causes, which would be scarce in a condition of producing severe maladies, or

340 INQUIRIES *concerning the* PULSE.

even ordinary ones, may occasion a malignant fever; it is in fact very difficult to conceive how a healthy body can all at once acquire that degree of disorder and depravation proper to a malignant fever: we know the activity of certain poisons and their deadly effects; but it is not demonstrated that they exist in every malignant fever; and tho' they even did exist, they suppose for the most part, a particular derangement in the bodies on which they more easily lay hold.

The very contagion of the plague, has been doubted by men of vigorous assertion and determined spirit, who have pretended that fear, which is almost a constant effect of the weakness of the constitution, is one of the principal causes of the most disastrous effects of that infection: they have remarked that the poor, the ill fed for a long time, and who by their state of misery are afraid of wanting all necessary succours, are most subject to be attacked by the plague. There is no epidemic distemper
which

which does not begin by attacking cacochymic bodies and poor people, whose minds are almost always dejected by their bad situation : there are in fact few malignant diseases that attack bodies quite sound ; they generally fall upon those that have been tried by a long series of disorders or maladies, and above all by uneasiness of mind.

In short, a malignant fever is a very *complicated* malady, or rather the result and period of many chronical maladies ; or even the last effort of that state of restraint into which many unperceived disorders have by degrees thrown the greatest part of the organs.

This malady supposes much strength and activity in the subjects who are attacked by it ; they must be so constituted as to be able to resist a long while the disorders that precede the malignant fever : pains in the head, weariness, indigestions, &c. that would have been real diseases for weak

342 INQUIRIES *concerning the* PULSE.

bodies; all these revolutions, even reiterated, are only silent and transient impressions on strong bodies; they support themselves by dint of their activity and by the vivacity of their movements: if they succumb it is only after redoubted attacks, and still preserving a degree of strength proportioned to their constitution: therefore one must be in the main of a strong constitution to have a malignant fever.

Nothing characterises so much this fever, when arrived at its *height*, as the particular *turn* which the nutritive juices, and all the mucous and cellular system have received in this fever; this tissue seems to be the repository of the inflammation, and the nutritive juice the matter of ordinary suppurations (*): they are so depraved in malignant fevers that no true inflammation nor perfect suppuration can be formed in them; there is nothing formed in them but obstructions, and gangrenous swellings.

* Vid. Thes. des Eaux d'Aquitaine.

Now the history of gangrenes, both internal and external, sheweth us that this depravation of the contexture of the part was working and preparing long before ; the organs that have lost their spring, for instance, by means of great colds, and that receive no nourishment on account of the stoppage of the vessels, are the ordinary seat of gangrenes which proceed from internal causes ; it is thus that all gangrenous cases, so common in malignant fevers, are probably owing to the antient impressions of the mucous contexture, of the parenchima of the parts, or of their smallest vessels.

The examination of the blood taken from the patient in a malignant fever, oftentimes indicates, that this blood has lost the mucous or nutritive substance which connects it's parts : this substance is the matter of the coagulations or concretions that we see in the cups, &c. and there is less of it found in these fevers than

in many others ; that is to say, that it has no plethora of mucous or nutritive juice, as is found in inflammatory cases.

This want of mucous juice seems to be the most fatal symptom in malignant fevers ; which is the reason that there is usually neither suppuration nor concoction to be expected in this fever ; reiterated observations, however, and examined without prejudice, indicate, that people hardly ever recover from a malignant fever, but by means of suppurations and inflammatory abscesses,

One might advance, that the mucous juice which swims in the blood has some relation to the white of an egg, that clarifies a muddy liquor in which it is boiled ; if this juice conveyed into all the vessels by the movement of the fever, carries with it all the parts of the urine, the bile, and other excremental liquors, it clarifies, as it were, the blood ; and
this

this is what happens in putrid inflammatory cases.

We cannot flatter ourselves that the case is the same in malignant fevers, in which the mucous juice does not roll with the blood, whether it remains cantoned in the cellular contexture which has lost all its activity, or whether it has itself degenerated, or that it is entirely wanting in a body attacked by a malignant fever, and which has been accustomed a long while to bad dyet: we should therefore, according to these notions, excite, if possible, a true inflammation, a plethora of the mucous juice in a malignant fever: this is perhaps what the most appropriated remedies produce in this malady.

Blistering plaisters give a general shock to the whole nervous system, they excite an inflammatory disposition, they stop the by-drift of the humours; and the irregular series of oscillations; they give a spring to all the parenchyma of the parts

346 INQUIRIES *concerning the PULSE.*

wherein the nutritive juice resides: we may say as much, pretty nearly, of the strongest internal remedies, of emetics, of cordials, of sudorifics, of quinquina, of volatile spirits, which are, to use the expression, slight internal blisters.

It is a thing well known that the Japanese and the Chinese treat several maladies only by caustics, and *acupunctures*, that is, in making over all the surface of the body a great number of little apertures with sharp instruments which they plunge into the flesh; they form by that means several inflammatory *kernals*; they quicken the mucous or cellular contexture whose nerves are numb'd; they throw, by means of this irritation given to the skin, a certain quantity of the mucous juices into the blood. Nature employs these juices in the concoction, and in the excretions, and in forming abscesses to favour the critical efforts.

It

It is thus, with some little difference, that “ the Hottentots, after having scratch’d
 “ the pit of the stomach till they have
 “ fetched blood, apply thereto a compo-
 “ sition of which they swallow part, and
 “ cure themselves, by that means, of the
 “ wound of a poisoned arrow*.

“ The custom on the continent of Ame-
 “ rica was to plunge persons attacked by
 “ a fever in cold water, and to put them
 “ afterwards before a great fire, after
 “ which, some hours sleep entirely recover-
 “ ed the patients§”.

In short, there were some savages who cured patients by making them run till they were out of breath, as soon as they came out of the bath, and by whipping them vigourously during that course.

* Histoire general. des voyages, Liv. 14. Tom 5 pag 164.
 § *Ibid* Tom. 7. pag. 87.

Scarified cuppings, so much boasted of by the antients, produced pretty near the same effects, as well as ligatures applied to the extremities, and all applications more or less irritating ; might not we expect the same effects from hot or cold baths ?

Be that as it may, it seems that those who in a malignant fever are only attentive to prevent the progress of an inflammation by many bleedings, copious drenches, sharpish or slightly quickened purges, don't attack the malady in it's first principles ; they are very far from favouring that particular species of critical effort which nature of herself might effect.

The pulse is very *complicated* in the malignant fever : it is *concentered*, SMALL, *depressed*, sometimes even more *slow* than in the natural state, at the beginning of the malady : the *development* is never *complete* in the progress of the malady ; the pulse
remains

remains always *uncritical*, very *convulsive* at the bottom, but besides very *variable*, more or less *trembling* according to the expression of Hippocrates; if it appears quite *critical* it is only for a time, which is not sufficient to assure the crisis.

In a word, there is nothing fixed, nothing determined in the progress of the pulse in a malignant fever; it is even sometimes by so much the more dangerous as it seems the more *natural* or more *critical*; in fine all depends on the degree of the malignity; when it happens that the malignant fever takes a favourable turn, then the pulse resumes it's state, and it's ordinary or else its critical course.

It would be useless to relate here observations on this head, the more so as the application of all that has been hitherto said concerning the *critical* pulse differently *complicated* with the pulse of *irritation*, presents itself pretty naturally, and seems
to

350 INQUIRIES *concerning the* PULSE.

to be sufficient till we shall have more exactly examined the pulse of *irritation*, or the *uncritical*†.

† See the last Chapter.

C H A P : XXXI.

On the difference sometimes observed in the pulse of both sides, and in that of the different parts of the body.

EVERY extraordinary phænomenon deserves to be observed with care, however rare it may be, and however whimsical it may appear at first sight; nature conceals herself frequently under the uniformity of a customary order; and sometimes does not discover herself but by extraordinary appearances.

It is certain that the ordinary course of the circulation of the blood, makes the pulsations

pulsations *equal* or *isochronous*, at least in the great arteries of the same subject; it is true also that we find in the course of practice cases wherein the pulsations of the great arteries of the same subject are more or less *disimilar* or *heterochronous*.

The moderns have established the theory and the application of bleeding upon the regularity of the pulsations of the arteries; the greatest part of them pay no attention to the two sides of the body, or to their differences; bleeding always appears to them a matter of indifference at least, in practice, whether it is performed on the right side or on the left; the antients, more scrupulous, often made choice of one of the two sides for letting blood, it would be an injustice to reject entirely the ideas of the antients, if they should appear to be founded on observation.

The history of the pulse, which is the principal object of this work, requires that we should describe it's least variations ;
the

the consequences that might be drawn from these variations, ought only to be presaged in this place, or rather they must be expected only from experienced proficients in the art.

It will be their business to decide whether it is indifferent, for instance, to let blood in the right or left arm, supposing that the pulse should indicate that the blood mounts on one side and descends on the other, that is to say, that the pulse is *capital* on one side and *ventral* on the other.

Observation seems to demonstrate the possibility of this supposition, but from this demonstration there can't as yet be inferred any conclusion for practice.

Each part has it's particular department in the body and in the mucous contexture, where it is in a manner niched; the liver sometimes makes it's action be felt on the whole right side and not on the left. The spleen, on the contrary, changes
often

often the whole left side from the head, the face, neck, shoulder, to the foot, without making any impression on the right side.

It seems that the body is naturally divided into two parts which meet or are joined in the middle or axis; these two parts, or halves, are commonly disposed in the same manner, or mounted on the same tone; but they have probably their own action and particular indispositions; a part inflamed may sometimes be looked upon, and in certain times of inflammation, as a kind of particular organ which makes, to use that expression, *a body apart*, and wherein the movements of the humours are not performed according to the progress and general powers of the circulation; these truths were known to the antients *.

* Vid. Recherches Anatomiques sur la position des Glandes. Vid. Aussi These, des Eaux Mineral. D'Aquitaine. These. 27, &c.

Hippocrates has advanced, that “ when
 “ the artery of the elbow beats, the
 “ patient would be seized with a frenzy,
 “ excepting he were of a very lively con-
 “ stitution.” The common people often
 make use of an expression very similar to
 the remark of Hippocrates; *the pulse*, say
 they, *is mounted to the elbow, and the patient*
is therefore very ill; it will not be amiss
 to consult observation in regard to this
 assertion.

It is also proper to consult the same
 observation on the beating of the carotid
 arteries and those of the abdomen, as also
 upon that of the jugular veins: it is not
 demonstrated that all these questions, and
 others of the like nature, are entirely
 useless; they will serve, perhaps, one day,
 to establish important truths.

However, we can't suppose that there
 is any person so ignorant as not to know
 that the different position of the arteries
 in

in the two wrists of the same subject, may occasion some apparent changes in the pulse of the two sides ; but it is not possible to explain all the relative differences to which the pulses of the two sides are subject, by the position of the arteries, or by any other particular conformation.

OBSERVATION CLXIV.

A L A D Y, who said she was indisposed, desiring me to feel her pulse, I told her that her right pulse appeared somewhat *embarrassed* ; *it had in it much of the pulse of irritation, it was withal very much disposed to become intestinal, the pulsations were irregular, but there was nothing quite determined in it* ; from whence I concluded that the blood seemed to remount towards the head, and to be very much disposed to open itself a passage by the breast or by the throat ; the patient acknowledged to me that such was her condition, and that she

was subject to an afflux of humours up towards the head, &c.

I desired again to feel the right pulse, which I said indicated some disorder towards the region of the liver, or the right side of the matrix; the lady told me that she had voided, some time before, an abscess which was said to proceed from the liver, and that she constantly felt some pain in the region of that intestine.

The right pulse was then *fixed* and disordered by an habitual sense of irritation towards the liver, the left pulse was more *free* and disposed to carry the blood towards the superior parts; the *capital* and the *ventral* pulse were thus found in the same subject, the one on one side, the other on the other.

OBSER-

OBSERVATION CLXV.

HISTERIC fits, with very whimsical symptoms, in a woman of twenty two, and who has not had her menses regularly for a long time ; the pulse is continually *frequent, small, close, equal* ; it develops itself on the right side after a long course of physick becomes pretty *full, irregular, unequal, slightly rebounding in some pulsations* ; the menses, that had ceased for six months, return in small quantities, and when they terminated the right pulse became again *convulsive* ; the left pulse never varies ; it is always, as usual, *small, close, frequent, equal* ; the verification of this fact was reiterated very often during the seven days that the menses lasted.

The difference of the two pulses was so considerable, that the persons who were about the patient perceived it. She was blistered some days after ; and the blisters

358 INQUIRIES concerning the PULSE.

rose very well on the right side, without having any effect on the left.

OBSERVATION CLXVI.

THE pulse is *hard, brisk, rebounding at each pulsation*, it is *nasal* on the right side, the patient bleeds at the nose, and only at the right nostril; the pulse on the left side is *full, soft, reduplicated with suppleness*, it is *pectoral*, he brings up phlegm almost *putriform*: what gave occasion to presume that the expectoration came from the left side of the breast, as the blood came from the right nostril, was, that the patient could not lie but with great difficulty on the right side; he is very quiet when he lies on the left side, on which he sleeps.

The pulse is *rebounding*, very much *dilated*, and quite decisively *nasal* on the left side, it is *small, close*, on the right side; appears even less *frequent* than the left pulse in a patient who only bleeds at the left nostril.

Solano

Solano has said, that “when the *rebounding* of the artery is more considerable in one wrist than in the other, the blood flows generally in greater abundance, from the nostril on the same side where the *rebounding* is more sensible.” Mr. Nihell is in this respect of the same opinion with Solano.

OBSERVATION CLXVII.

A WOMAN of forty five had an obstruction which appeared situated in the right ovary, it pained her sometimes many days successively, for the space of seven years, and during the time of her suffering, the pulse on that side, which is the right, was somewhat *irregular*, and *intermitting* pretty nearly at every twelfth pulsation; that of the left was never so; it continued always pretty *equal*; these kinds of paroxysms are usually preceded by constipations, and followed by a slight looseness.

OBSERVATION CLXVIII.

IT is no rare matter to find a plain difference between the two pulses of both sides in many diseases.

The pulse is sometimes more *strong* in an arm attacked with a rheumatic pain, and swelled, than in the other arm; we have even found this pulse of the side affected very *nasal*, whilst that of the other side felt no effects of it; there was a bleeding at the nose; in like manner the pulse of the unaffected side has been found quite decided towards a looseness, that is, *intestinal*, the pulse of the ailing side being only in a state of tension and *convulsive*.

The two pulses are oftentimes different in attacks of the apoplexy, which degenerate into a palsy of one of the arms; and the pulse of the arm wherein the palsy
is

INQUIRIES concerning the PULSE. 361
is formed is not always the *smallest* and
closest.

Such as are paralytic in one half of their
body have also both pulses different, that
of the weak side is almost always *weaker*,
closer, *smaller*.

The pulses of both sides are sometimes
different in pleurifies and defluxions on the
breast ; that of the weak side is usually
more *convulsive*.

The same observation has been made, and
the like difference been found between the
two pulses in the maladies of the liver and
spleen, in megrims, and even in such as
arise from external causes.

The gout thoroughly decided in one foot,
makes sometimes the pulse of that side,
more *close*, and more *convulsive*, than that
of the other. The same remark has been
made in nephritic cholics.

There

362 INQUIRIES *concerning the PULSE.*

There are women, who, during their courses, have the two pulses different, and who, at that time, feel much more irritation and are more swelled in one breast, than the other; it is thus, that nurses sometimes lose their milk in one breast.

Some persons subject to the hemorrhoids, have also the two pulses different; there are some who have the hemorrhoids only in one side, as there are bleedings at one nostril only.

OBSERVATION CLXIX.

THE carotid arteries are sometimes observed to beat much more briskly than in the natural state, without any sensible marks of that alteration of force being felt in the pulse of the arm.

It has happened, that *reboundings* have been observed in the carotids, which indicated

cated a bleeding at the nose ; the bleeding ensued, with this singularity, that the *reboundings* were much sooner perceivable in the carotids, than in the arteries of the arm.

There have been some patients in whom the blood seemed to flow continually in the carotids, which remained, as it were, immoveable, without dilating or contracting ; the column of the blood seemed to move there, as by the continual action of a piston, while the arteries of the arm had nearly their usual systole and diastole.

In fine, the carotids on both sides have not always the same force ; they are, in that respect, subject to almost the same variations as the arteries of the arms.

OBSERVATION CLXX.

THERE is scarce a practitioner that has not met some patients, particularly women, in whom they have observed violent
pulsations

364 INQUIRIES concerning the PULSE.

pulsations of the arteries, situated in the cavity of the abdomen, between the navel and the xiphoidial cartilage; these pulsations are sometimes much more violent than the force of the arteries of the arm seems to indicate; they have been sometimes observed with a kind of *reduplication* or *rebounding*, which were not perceptible in the arteries of the arm.

It happens frequently, that these great arteries of the abdomen follow exactly the movements of the carotids; but these pulsations are also sometimes very violent, while the carotid arteries have nothing extraordinary in their pulsations; and these on the contrary, beat sometimes very vigorously, whilst nothing extraordinary is observable in the arteries of the abdomen.

We have met with a patient, who had an abundant bleeding at the nose; the carotid arteries beat very violently; the arteries of the abdomen becoming sensible, and having beat very strongly for two days,
the

the course of the humours changed, the bleeding at the nose ceased, there ensued a looseness, indicated by the ordinary revolutions of the pulse.

OBSERVATION CLXXI.

THE pulse is sometimes almost *INSENSIBLE* in the wrist of some dying persons; and very *sensible* towards the elbow, and more *strong* during these moments, than it had been in the same place, while the patient was in perfect health.

Some subjects are found, and particularly dying persons, in whom the movement of the artery is evidently *successive*, whereby we mean, that it is at first observed towards the elbow, and that it extends itself afterwards to the wrist, by a kind of progressive or peristaltic motion.

The cough in some patients produces a singular effect in the arteries of the arm; we evidently perceive, that the cough is
like

366 INQUIRIES *concerning the PULSE.*

like the stroke of a piston that pushes the column of blood, which seems to disappear, or which sensibly diminishes as soon as the cough ceases.

One of those patients had in the intervals of the cough, the artery *tensive*, and almost *empty*, and every time that he coughed, we felt a column of blood, which was pushed with vehemence to the middle of the fore arm; it did not seem to proceed farther towards the hand, and we might imagine, that it flowed back towards the elbow during the movements of the inspiration; it is easy to find occasions of observing the like variations in the pulsation of the carotid arteries.

OBSERVATION CLXXII.

THERE are patients in whom the jugular veins appear to have some pulsations, but upon a closer attention, it is oftentimes observed, that these pulsations are only

ly those of the carotid arteries, who put the jugular veins in motion.

We also, sometimes, meet with patients in whom, independently of these shocks, which proceed from the action of the carotids; the tunics of the jugular veins, tremble, and are actuated by a movement which is peculiar to themselves.

An experiment has been made, to stop with the finger the course of the blood in the jugular veins of some patients, whose head had been attacked; in some of them the blood precipitated itself immediately into the heart; the vein remained, in appearance, empty and depressed between the finger, and the heart, or at least the entrance of the vein into the cavity of the breast; in others, the blood did not vanish all at once, it even made it's appearance again, and was evidently observed going and coming in the trunk of the vein during the different movements of the heart.

We

We have observed in a subject, who was let blood in the jugular vein, the blood remounting from the heart towards the aperture, it flowed from thence while the vein was compressed above the aperture that had been made for the bleeding.

All this proves, that the blood may be carried from the trunk of the jugular veins towards their ramifications, and there take directions contrary to the ordinary movements, or laws of circulation; and throws, as well as doth the history of varices, a new light on all which has been remarked in the twenty-first chapter.

OBSERVATION CLXXIII.

TRIAL has been made, in our hospitals, on soldiers and other persons, willing to exhibit themselves for that purpose, by comparing the pulse of the inferior extremities with that of the superior; but the pulse is very hard to be felt exactly under the bending of the knee; that of the toes, is not perceptible in many subjects. It has
been

been however, observed, where the blood mounts to the head, the arteries of the legs are much more *close* than in the natural state, and that their pulsations are not always exactly *like* those of the superior arteries, particularly the carotid.

As to the veins, there are many patients in whom the inferior veins are extremely swelled, while the superior are less so than in their natural state, and reciprocally, it appears, even, that in most acute diseases, particularly those where the pulse is *superior*, the superior veins are constantly more apparent proportionably than the inferior. In many chronical maladies, the inferior veins are swelled in an extraordinary manner.

Women furnish striking examples of this inequality in the largeness of the veins. We see girls on the point of having their courses, others on the point of losing them, and pregnant women, have the exterior

veiny system remarkably enlarged, and often in a very short time.

The trouble that may be taken in examining the pulse of the inferior extremities, who intrepidly offer themselves to undergo any kind of examination, will not perhaps be entirely fruitless; we shall thereby discover many particulars in respect to the relation between the heat and cold of these extremities to the different states of the disease; there are physicians, who think they should in certain cases feel the feet of their patients; there have been some who judged of the diseases of children, almost by touching their feet.

The design of this chapter was only to prove, that the two pulses are not always equal, and that they are even oftener unequal than one could imagine, in keeping rigourously to the laws of circulation: the causes of these variations, what they indicate, the use that may be made of them in practice, all that does not belong to this place; our design is, only to awaken the
attention

INQUIRIES concerning the PULSE. 371
attention of physicians, on matters that
seem to have been too much neglected,
particularly by the moderns *.

* Institutiones medicæ, &c.

C H A P. XXXII.

Detached observations, which confirm
what has been proposed on the different
species of pulses, *superior, inferior, ca-
pital, pectoral, &c.*

Maladies produced by external causes.

THE history of wounds, and other
maladies from external causes, might
throw a great light on the use of the parts;
it is a pity, that none of the physicians
who have attended the army, turned their
views that way, which must have proved
a very valuable course of anatomy that could
be supported by observations made on liv-
ing subjects, wounded in different parts.

There ensue sometimes, bleedings at the nose, after blows, or contusions in the head : the pulse is very *rebounding*, and very *decisively nasal* in many cases of this kind.

The bleeding at the nose does not appear, sometimes, 'till towards the third or fourth day ; the pulse having been *convulsive* and *close* during the former : it has appeared, that of all these pulses, the most *convulsive* or the most *close*, has been that of wounds, and convulsions of the *dura mater*.

A wound and considerable contusion in the thyroïdal cartilage ; the pulse is evidently *superior* and *rebounding*, with some little *softness* during the time of the supuration ; which signifies, that it approaches very near the pulse that indicates the evacuations of the throat.

It has been found pretty near of the same species in many of the parotid glands
that

that suppurated considerably at the end of acute diseases ; but there is usually, in these cases, a degree of *irritation*, which makes the pulse more or less *complicated* ; and which it highly concerns us to attend to.

Wounds of the breast, particularly when they penetrate to the inside of the lungs, are oftentimes accompanied, during the time of their suppuration, by the *pectoral* pulse more or less *complicated* with the pulse of *irritation*.

A cancer having corroded the ribs and the lungs, and caused a spitting of blood and corruption, the pulse bordered very much on the *pectoral*.

It was found pretty nearly in the same state in suppurated cancers in breasts, when the pain did not cause too much *irritation*, and that the ulcer suppurated abundantly.

A nurse of a strong and good constitution, in whom the milk mounted so violently, as to evacuate itself abundantly by the nipple, had her pulse drawing towards the *pectoral* when the milk was remounting : this woman felt an extraordinary fluttering, which, from the inward part of the belly terminated at the breasts : this was an image of a very natural crisis, or of a sort of *critical perturbation* in the department of the breasts.

A wound in the abdomen : the small intestines are opened ; the suppuration being duly declared, the pulse is *irregular, unequal, inferior* ; in a word, very much drawing towards the *intestinal* : it was *convulsive* during the first days.

It was nearly in the same state in an abscess, in the substance of the liver, after an opening had been made, and that the wound was in full suppuration.

The same has been remarked in a subject, whose bowels had been bruised by a cart wheel's going over his belly, and all whose viscera fell into a suppuration, and state of putrifaction.

A patient afflicted with the cholic, having put himself under the care of a Quack, who trod on his belly, and bruised his *intestines* to cure him of the pain, had some days after, an inflammatory abscess in the bowels; his pulse was *inferior, close, reduplicating, intermitting*: he voided blood and corruption, with bilious and very foetid matter.

A soldier, who had a ball shot through his belly at the right side of his navel, had a fistula in the place he had received the wound; there came out of his wound five or six inches of the small intestines: this intestine was generally compressed, whitish, and without movement; but, two or three hours after the soldier had eaten, this portion of the intestine grew red, it swelled,

376 INQUIRIES concerning the PULSE.

moved, and winded about several times, like the severed part of a serpent that still retains some life * ; there came out afterwards of this intestine, portions of his food half digested ; his pulse was, during the evacuation *irregular*, and pretty *strong*.

Many persons who are cut for the stone, have, for the first days, their pulse *convulsive* and *irritated* ; it *develops* itself afterwards, is *inferior* ; some subjects have been observed to have it *irregular*, and with that sort of irregularity that indicates urine ; to wit, that the pulsations *went diminishing from stronger to weaker*, 'till they became almost imperceptible : this pulse has been observed in some of those, whose wound suppurated considerably and who voided much urine.

* *Erigebatur*. Vid. Recherches sur les glandes, au sujet des erections des organes.

The Fluor Albus.

THIS evacuation is partly critical, partly symptomatical, and more or less so, according to the different constitutions; the pulse of these kinds of evacuations, is therefore not always exactly *critical*; it has not always the same characteristic.

A lady complained of her breast, two months after her lying-in; I felt her pulse, I told her, I believed she would have her courses the following month, which had not happened since her lying-in: the pulse was *irregular*, pretty *strong*, with manifest *reboundings*; it was, in fine, with very little difference, the same as when it indicates the courses; it had some pulsations that indicated *irritation*; which I attributed to the state of the breast.

The time when the menses were expected, being come, the lady told me she had them not; I persisted in my opinion, finding

378 INQUIRIES concerning the PULSE.

ing the pulse in the same state for three months successively: at length, the lady owned to him that she had no red fluxes, but that she had an habitual white flux, which encreased at the time that the red flux was expected.

We must not however, imagine that the pulse of the *fluor albus*, is always, as manifestly marked as in this observation, which is detached; it is certain, that it has been often found *small, irregular, with slight and frequent reboundings*; but one must be very circumspect in prognostics of this nature, until the characteristic marks of the *fluor albus* can be exactly determined.

A cancerous tumour in the Matrix.

THE pulse in a tumour of the matrix joined to sharp pains, as it were periodical, and to a discharge of purulent matter has been for three months: first, very *convulsive*, in the fits of the pain; secondly, *dilated, unequal, irregular*, when the purulent

lent matter flowed abundantly. This pulse was never *superior*, but one day that it was *rebounding*; there appeared the next day a slight bleeding at the nose; it did not seem, one may say, *feverish*; it was always *unequal* to the end of the malady, which terminated by a dropfy.

Consumptions of the Lungs, in the last stage.

THE pulse hath always appeared *convulsive* in these kinds of diseases; whilst it was *relaxed*, and the expectoration abundant, it was slightly *pectoral*, and more or less *reduplicated* when there was any blood in the expectoration; but when a looseness was joined to the other symptoms, the pulse became *unequal*, *irregular*, and sometimes *intermitting*.

Dropfy of the Abdomen.

THE pulse is always inferior in these disorders, unless there be a bleeding at the nose; the pulse is then *rebounding*, and evidently *pectoral* when the cough appears,
parti-

380 INQUIRIES *concerning the* PULSE.

particularly, if the expectoration is somewhat concocted : it becomes *irregular* and sometimes *intermitting*, when the belly flows ; otherwise, the pulse preserves almost always *a fund of convulsion* in this malady ; it is peculiarly *small*, and usually *hard*, some days before the agony.

A patient who did not chuse to tell me his ailment, desired me to feel his pulse ; I found it *small, concentered, irregular, weak, intermitting* ; upon which, I pronounced, that there was a disposition to a looseness, and that this looseness did not appear critical, because the pulse had a considerable fund of *convulsion*, which seemed to indicate some local disorder in the entrails. The patient told me then, that he was dropfical, and that he had taken that week a drug from a Quack, after which he had a looseness, which still continued, and had been so abundant, that the belly had been totally emptied ; I found a painful tumour towards the region of the
liver ;

INQUIRIES *concerning the* PULSE. 381
liver ; the belly filled again, and the patient died sometime after.

Convulsive maladies of the Abdomen ; the
PAINTER'S CHOLIC.

IT is, by following closely convulsive diseases, that we can arrive at determining the different characteristics of the pulse that is proper to them ; it is not uncommon to find these kinds of convulsions of the entrails, wherein the pulse is more or less *ventral* ; which is also found in the different tumours of the abdomen.

This state of the pulse manifests itself, principally, in the painter's cholic. It has always appeared more or less *close, brisk, unequal*, and sometimes *intermitting*, in the first stages of that disorder : the pulse afterwards *develops* itself slightly ; it remains often *unequal* and *intermitting*, then the evacuations are very abundant, after taking
remedies,

remedies, which, till then, had no notable effect.

The pulse, in these cases, hath been observed to become *superior, rebounding, quite pectoral*, and there was then a bleeding at the nose, or marks of the flux of the humours towards the head, coughs or spitings, more or less thick. These maladies seem to follow the progress of all others, and to have their different periods; a particular very well worth remarking, as it may, perhaps, reconcile the ideas of practitioners, who treat these maladies, by the most violent purges, some others by anodynes, and even by bleedings.

On the Taenia, and Worms in Children.

THE presence of worms in the intestines makes the pulse *irregular, brisk, saw-like, tremulous, unequal*.

It has appeared to have all these characteristics in the subjects that were troubled
with

with the tænia or tape-worm, with this singularity, that these modifications of the pulse were much more sensible in the times that preceded the excretion, or voiding of a portion of this worm.

There have been seen some subjects, in whom these fore-runners of the excretion, were accompanied by weariness, by a singular dejectedness, sweats, looseness, suffocation, tremblings ; in a word, by all the symptoms proper to maladies of the head, breast, and extremities.

This observation furnishes a remarkable support to their notions, who are of opinion, that all maladies proceed from the the entrails ; and that the irritation of these parts renders itself perceivable in the different regions, according to it's degree, and according to the place where it is situated.

On the Scurvy.

EUGALENUS was of opinion, that the *smallness*, *frequency*, and particularly the *inequality* of the pulse, were certain signs of the scurvy. Monfuer Lind, who has made it his business to criticize *Eugalenus*, did not spare him in respect of the pulse: but what is certain, is, that the characteristics of the pulse described by *Eugalenus*, denote an affection of the entrails, and that besides the viscera, are oftentimes the first that are attacked by the scorbutic corruption. It remained to be decided, how far the *smallness*, *frequency*, and *inequality*, indicated by *Eugalenus*, are different from the same modifications which accompany the unscorbutic dispositions of the viscera, and if we must not distinguish in the scurvy, a first period, during which it was principally exercised in the entrails, &c. However, the pulse of persons decisively scorbutic assume the modifications peculiar to each evacuation; but it is always *complicated*

cated with a state of *irritation*, which makes it draw very near the description of Eucalenus; this remark alone makes me presume, that physician has not imagined all he said.

Rheumatism in the extremities: the Gout.

THE rheumatic pulse is usually very different at the beginning and the end of the malady, according as the parts affected are above or below the diaphragma; in the latter, to wit, in pains of the kidneys, thighs, knees, feet, the pulse is *inferior*, that is to say, *unequal, obscure, scarcely rebounding*; whereas, when the rheumatism is in the head, neck, shoulders, or even in the wrist, the pulse is *superior*, except it has some particular *complication*, and that the rheumatic pain is a symptom of some of the viscera being affected.

The pulse has often been found *pectoral* after rheumatisms, particularly those of the superior parts; and in fact, they are often-

386 INQUIRIES *concerning the* PULSE.

times followed by excretions almost purulent as expectorated, whereas the rheumatism of the parts situated below the diaphragma, are often terminated by evacuations of the belly.

The pulse is always *unequal, hard, deep*, in attacks of a thoroughly decided gout, particularly when the feet swell : the pulse is different, if the gout is in the hand ; it is not however, truly *superior*, but in cases where, as it is said, the gout mounts : in general the nature of the gouty pulse indicates, that the viscera of the abdomen are more or less affected in this malady : there are fits of the gout wherein the pulse passes through many states which indicate the excretions from different viscera, whereby the fit terminates.

A gouty person, naturally strong and vigorous, never had a fit of the gout in the foot, that did not end by a stoppage in the nose, and a kind of extinction of voice followed by an abundant expectoration of
mucous

mucous matter; the pulse was *unequal, hard, deep, pretty slow and inferior*, during the beginning of the fit; it afterwards *developped* itself, and became *superior*, it was exactly *pectoral* during the *discharge*, by expectoration.

Considerable Wounds and Amputation of the inferior Extremities.

CRITICAL and uncritical abscesses, which are formed on the inferior extremities, are usually attended by the INFERIOR pulse, that is, *unequal, concentered*; and it is *intermitting* when there is a critical looseness.

An old woman subject to a kind of catarrhus affection, joined to a disposition to the asthma, had the pulse *hard, dilated, and rebounding, or reduplicated*, as in the *pectoral* pulse; this pulse was then evidently *superior*; it changed suddenly, and there surper-vened a considerable abscess in the right leg, which was considerably swelled

388 INQUIRIES *concerning the* PULSE.

for a long time, and suppurated abundantly; the breast was disengaged, the pulse continued while the suppuration of the leg lasted, very different from what it was whilst the breast was attacked; it was *unequal, deep, pretty hard, inferior*.

The pulse, during the time they were performing the amputation of the thigh in a man who had fractured the rotula, the tibia, and the femur, by falling from a very high place, was *close, small, convulsive, choaked, pretty equal, frequent, and intermitting*; it had not risen, for two days, which followed the operation, and the patient died on the fourth, having 'always pulse in the same state.

The pulse *rose* after the second day in another man, whose thigh had been amputated; it *developped* itself three days after, to wit, towards the fifth; but it still continued *inferior, unequal, pretty hard*, and remained so during the whole course of the
sup-

suppuration and cicatrization, which lasted above one hundred and twenty days; the pulse became *intermitting* after some indigestions that ended by a looseness, which soon ceased, after which the wound began to mend.

There has been found a difference between the pulses of the two sides in persons on whom the amputation of the thigh had been performed; these differences have not appeared regular, that is to say, the same in all subjects; they therefore require further considerations.

The action of Baths, mineral Kermes, Glifters, Mercury, and Blisters on the Pulse.

THE bath, whether hot or cold, causes a sort of feverish fit; the pulse is often *brisk* and *close* in the bath, it is *dilated* afterwards, and commonly *develops* itself, without assuming the characteristic proper to any excretion.

It has been sometimes observed, that the pulse is *developped* remarkably in hot baths, and acquires the inequalities of the pulsations that indicate sweat, to wit, that among the *dilated* and ordinary pulsations, *there were one or two sensibly more HIGH than the other, joined with the softness of the artery*: these baths were followed by very abundant sweats.

This would, probably, be one of the means proper to judge of the action of baths: it is well known, that there are living bodies that lose of their weight in the baths, others that lose nothing, and some that seem to acquire weight in them; it is probable, that the pulse must be different on these different occasions, and we must wait, in this respect, for information from attentive observers.

The action of baths is not so easy to be explained as a theory, too slight and too specious, seems to promise.

We

We have seen the mineral kermes, and balsamic mineral waters, sensibly raise the pulse and make it very *pectoral*; copious discharges by expectoration, followed such revolutions.

It is certain, that all alterative remedies change the pulse at long run; they *develop* it, *compose* or *soften* it according to their nature, and particularly, according to the particular dispositions of the subject that takes them; which is of great importance to remark, in order to determine in maladies and in their consequences, what appertains to art, and what to nature.

It were to be wished, that we could come to a capacity of judging by the state of the pulse, of the nature of medicines that are suitable in the different maladies: it would be necessary, for that purpose, to be provided with a series of well-circumstanced observations.

Attentive observers are here informed, that the history of the revolutions caused in the pulse by the action of glisters, does not less deserve their attention, than that from the effects of other remedies: there are things very important to be remarked in the action of glisters; they have been known to accelerate paroxysms, and stop others, &c. it would be perhaps, impossible, in examining and following closely this subject, to spare patients the swallowing of many disagreeable drugs, and to put at the same time, limits, to that sort of passion which many people have for glisters; a passion which is now-a-days come to a singular height, and which is not at all agreeable to the moderation and circumspection of antient physicians, in respect to glisters.

It is very usual for mercury to make the pulse *superior* and *rebounding*, with more or less *irritation*, when it procures a very abundant salivation: perhaps, even the salivation

livation accompanied with that species of pulse that is proper to it, and that is in the order of nature, is always, if not necessary, at least useful; whereas, that wherein the pulse does not take on the characteristic proper to this excretion, or which remains *uncritical, convulsive, or inferior*, is perhaps, contrary to nature, symptomatical, useless, hurtful, *colliquative*.

Blistering plaisters usually augment the movement of the pulse; they increase the fever; the pulsations are much more *dilated* after the application of this irritating remedy; and especially when the sore it occasions is proceeding to a suppuration.

We have seen blistering plaisters *develop* the pulse much more on the side of the body upon which they had been applied, or on which they had taken a greater hold, though they had been applied to both sides.

There

There has sometimes appeared a difference in the state of the pulse, due to the effect of blistering plaisters, according as they had been applied to the arms, to the nape of the neck, to the thighs, or to the calves of the legs.

These differences have given rise to reflexions upon the application of blistering plaisters, and give room to guess, that it is not always indifferent to apply them to the calves of the legs, arms, or neck; perhaps, even there are cases wherein we should be content to apply one blistering plaister only, and others wherein there should be two, either on both arms or both legs.

Rules founded on observation, in regard to the application of blistering plaisters, would clear up many questions in practice and in theory; nothing seems so much calculated to support the theory of the different

ent

ent *departments* of the organs*, of the different connexions of the internal and external parts, and the separation or natural division of the body into different regions, or different sides, as the changes produced by this remedy, if we were to examine them closely; nothing is more difficult to explain by the theory now most in vogue, than these different effects, which in general are not sufficiently attended to.

Fevers of the intermittent Class.

THESE maladies enter naturally into the class of complicated diseases described in the twenty seventh chapter: it would not be difficult to prove that the greatest part of intermitting fevers seem composed of two maladies, of an acute and chronic, which it is proper not to lose sight of.

It is certain that these fevers have their critical excretions, as well as the continued

* Vid. Recherches sur les glandes.

fevers; this truth has been demonstrated by an author worthy of credit*.

The pulse has something peculiar in these fevers, it remains more or less complicated, and it usually has in it a great deal of the *ventral* till the disease is entirely terminated; many tertian fevers have been seen in which the pulse, particularly that of the right side, was *hepatical* or drawing towards that which is treated of in the twenty sixth chapter; and in fact there were jaundices more or less decided, and evacuations more or less considerable.

Quinquina suspends this malady but does not always determine it compleatly; this is again a truth for which we are indebted to *Albertinus*, and which it is proper to inform those of who have no other view in intermitting fevers than to prevent the fits and to stop the malady.

* *Albertinus* Actes de L'Academie de Boulogne 1731.
See also observations on the Pulse, by Mr. Nihell.

It is very usual to find at the end of the fits of every kind of intermitting fevers, revolutions of the pulse, which indicate some evacuation ; but the pulse is never so *developped*, so *supple*, so *full*, so *critical* in a word, as when the fits are drawing towards an end, that is to say, when the malady has passed through all its periods.

The use of quinquina prudently administered does not always oppose these crises; on the contrary it serves as a kind of cordial very proper to animate the pulse, and prepare the evacuations.

There is one that this remedy prepares very efficaciously, to wit expectoration : every body knows that quinquina operates on the breast ; and it is certain that when administered in small doses, it often renders the pulse manifestly *pectoral*, and prepares the matter for expectoration.

On Recovering from Sicknefs.

It is a kind of malady ; and may be compared to the effort of a large wound in the body, when all the accidents of it are appeased : the want of strength, the paleness of the countenance, the state of the skin, and the fever, or feverish state in the pulse accompany this revolution.

The pulse assumes always the modifications proper to the different excretions which happen at that time : it has a strong affinity to the pulse of suppurations, and oftentimes to the *intestinal* or *ventral*.

We have seen patients who having been recovered from a defluxion on the breast found themselves perfectly well, till the quantity of blood encreasing to a certain degree, a spitting thereof ensued ; this observation was reiterated, in three different subjects, one of them spit blood at three different

different intervals, and was forced to enter upon a quite different course of life from that to which he had been accustomed before his malady.

It is not uncommon to see young persons shoot up very speedily in the time of their recovery and acquire a great deal of plumpness; these maladies are retainers to the revolutions of that age, which the common people call the times of growing.

There has been an instance of a young woman who grew prodigiously fat during the time of a continued fever; she had the fever a second time and she again grew fat, and continued afterwards in that state.

We have seen patients whose crisis was an evident and sensible collection of mucous juices in some of the extremities which grew larger in all their dimensions without any sort of tumour or swelling.

The

The pulse in all these cases kept a particular tenor very different from that which it has in the maladies that are terminated by the usual evacuations.

On the pulse in some agonies.

The pulse is not of the same nature in all agonies ; there are some where it passes very suddenly from one state to another ; it is *capital, pectoral, ventral*, almost in the same instant ; the excretions which these pulses precede happen even sometimes ; but there is so much weakness and so considerable a derangement that nature can't take the upper hand ; it is no uncommon thing to find in all these pulses a kind of *softness* or *emptiness* in the artery which indicates a mortal dejection : Hippocrates observes that the pulse *that strikes lightly and languishingly is a sign of approaching death.*

We

We have been, since the time of Galen, too apprehensive of the *intermitting* pulse, as Mr. Nihell has justly observed; but intermittences are almost always mortal when they are joined to a *weakness*, an *inequality*, a *smallness*, and especially when to a certain *emptiness* which we can't so well express, and with which practice alone will bring us acquainted.

There is a middle road to be taken between the opinion of the antients and that of Solano, in regard to the *intermitting* pulse; it is not precisely to the pulsations which fail or occasion the *intermittences*, that we must have a regard, to judge if the pulse is mortal; but we must pay a great deal of attention to the *force*, *ease*, and to the freedom of the pulsations that are felt.

Of the Pulse in the state of pregnancy.

THE pulse is usually *frequent*, not uneven, *strong*, and as it were feverish, in pregnan-

cies ; it is in the beginning, to wit, in the two or three first months, *embarrassed, variable* ; these first periods are often accompanied, as every one knows, with frequent spitting, vomitings, and several disorders of the bowels : and therefore the pulse is allied to that of *irritation* and the *stomachal*.

It *develops* itself in proportion as the pregnancy advances ; it becomes more or less *rebounding*, or *nasal* ; but does not always maintain itself in that state, so as to produce a bleeding at the nose.

The pulse becomes afterwards *irregular, hard, hurried* ; and towards the last months it usually approaches to *the pulse of the matrix*, that is to say, it is *irregular, full, hard*, and from time to time *rebounding*.

The pulse that precedes for a short time, the lying-in, becomes, as in every other evacuation, forced, more or less *convulsive, close, frequent, intermitting*.

One

One thing important to remark is, it often happens that the pulse of pregnant women, becomes, towards the time of the month which corresponds with that on which they had their courses, *irregular*, and more or less *rebounding*, that is to say, it appears to indicate the menses every month; but it does not continue long in that state, which generally is only transient, otherwise it might always give room to fear a miscarriage: this apprehension would be doubly grounded at the beginning of the month of pregnancy, which corresponds to that whereon the courses were usually more abundant; for observation demonstrates that most women have more copious courses every second month.

In general the maladies, and every indisposition in women, deserve the scrupulous attention of a physician, in the time of their courses; it is to be feared, for instance, that habitual spittings of blood may either

encrease, or manifest themselves at that time the effort which determines the menses influences the whole body, so far as to make the practitioner fear some extraordinary change in all the parts that are weakened.

We must say as much of the revolution which happens in the last days of the flux of the menses: this period of the excretion has particularly seemed more alarming in women of a certain age, and who are upon the point of losing entirely their courses, than in such as are still young.

The history of these variations of the pulse in pregnant women, as here laid before us, might, in general, lead us, when better circumstanced, to form a sounder judgment of the good or bad state of these pregnancies, and to indicate, in time, the precautions suitable to prevent many accidents.

Be it remembered, that all the observations comprized in this chapter are exhibited

INQUIRIES concerning the PULSE. 405
exhibited only as incomplete and detached; they corroborate what has been advanced in the foregoing chapters; but they want to be reiterated, followed, estimated, put in their proper place for the better accomplishing an history of the pulse.

C H A P XXXIII.

On the time and on the days of a malady when we ought to expect the Excretions indicated by the critical changes of the Pulse.

IT is a matter of no small importance, to be able to know and predict the species of critical evacuations which nature prepares in a malady; it is scarcely less so to be able to conjecture in what time we ought to expect such excretions.

It was natural to try whether the variations of the pulse that indicate critical evacuations, don't also indicate the time

406 INQUIRIES concerning the PULSE.

of these evacuations, Solano had already begun to treat of this matter, as shall be seen at the end of this chapter.

Let us examine therefore, whether each species of *critical* pulses has not particular differences ; that will enable us to judge solidly enough of the more or less remote time of the crises appearing which it denotes. Now let us take, at first, by way of instance, the *pectoral* pulse.

There are certainly different degrees or different shadowings in the *pectoral* pulse, since it is found to be *simple*, *compounded* or *complicated*. Some remarks on the *simple pectoral* will naturally introduce what we are to think of this pulse *compounded*, or *complicated*, in respect to the question proposed.

The *simple pectoral* may turn out constant, continued, well supported, or otherwise it may make but a transitory appearance after certain intervals ; but if it prove continued, and truly constant in it's development,

lopment, and that it supports itself so for one entire day; the expectoration will commence on the fourth day of the malady, reckoning from that whereon the *pectoral* pulse appeared to be quite *determined*, and quite *continued*.

The above truth is founded upon observation; but great attention must be paid to the conditions required to constitute a favourable state in the *pectoral* pulse, which on the fourth day ought to be accompanied with an expectoration.

The *pectoral* pulse, ought, in the first place, to be *continued*, which means, that all the pulsations, or at least the greatest part of them, ought to be *redoubled*, and wear that characteristic, which renders the pulse *pectoral*. This pulse ought also to prove constant in it's *development*, and to maintain itself, at least one entire day: for if it should alter, or be *enfeebled*, that would be a proof, that there has supervened some obstacle to the progress of the evacuation: it will not appear as was expect-

ed ; or if it should on the fourth day, it will not be complete, but in a manner abortive: which doctrine will be confirmed by what is hereafter to follow.

If the *pectoral* pulse be not truly constant, truly continued, and yet *simple*, or that it have some pectoral pulsations, which exhibit themselves after certain intervals, and that the pulse is developping itself during these intervals ; we may infer from the longer or shorter duration of such intervals, how far they may delay the expectoration.

Some *pectoral* pulsations, almost detached, to wit, distanced from each other by considerable intervals, do, at the utmost, indicate an expectoration before the last period of the malady ; there is not the least room to expect a complete crisis subsequent to such detached pulsations, because they are not a cause of sufficient determination, to produce a certain effect ; and that moreover, it often happens, that such feeble tendencies to a critical effort, are thwarted by

by other supervening revolutions; such as are frequently occasioned by the mechanism of an imperfectly decided crisis.

But two, three or four *pectoral* pulsations, and more, that are immediately joined to each other and separated by intervals nearly equal, indicate, in general, with certainty enough, an expectoration; and we may pronounce that it will happen towards the seventh day, counting from that whereon they began to shew themselves: but the more frequent the *pectoral* pulsations are, and the shorter the intervals that separate them are, the more the expectoration is ready to be decided.

There results then from what we have established, two truths, that are as two fixed points to which may be referred all possible cases in regard to the *simple pectoral* pulse; first, *if the simple pectoral pulse is continued, quite developped, quite settled, and if it persists in that state more than one day, the expectoration will happen towards the fourth*

fourth day, counting from that in which it had been decided pectoral and continued.

Secondly, *If the simple pectoral pulse is not continued, and if it has lasted more than one day, the expectoration is to be expected towards the seventh day from the commencement of the pectoral pulsations ; particularly if there has been no day of interruption, that is, reduplications during which the pectoral pulsations have not appeared ; for in that case the days whereon these reduplications have shewed themselves, are not to be taken into the number of the days that we must count for the critical revolution of the maladies ; as shall be seen in the sequel of this chapter.*

It is uncommon that the *pectoral simple* pulse presents itself at first in a state of perfection, and consequently, that one can depend upon a crisis on the fourth day ; and it usually happens that during the first periods of it's appearance, it is often separated by intervals more or less considerable : which is the reason that, ordinarily, one
must

must not expect the expectoration till towards the seventh, reckoning from the day on which the pulse had shewed itself *pectoral*.

But why must the *pectoral* pulse have continued more than one day, or at least one whole day, in order that an evacuation by the mouth may be indicated with certainty on the seventh day or pretty nearly ; or on the fourth, when the *pectoral* is continued from the first day.

When the pulse is quite *developped* or critical, it is, as hath been remarked in the third chapter, *indifferent* or *undetermined* towards any particular kind of evacuation. If then there appear some transient *pectoral* pulsations, they without doubt indicate, that part of the crisis is going to be carried towards the breast ; but it may happen, and it often does happen that another evacuation, which was then deciding while the pulse had been still more *undetermined* than *determined*, that is to say, that it has more pulsations simply *developped* than it
has

412 INQUIRIES concerning the PULSE.

has *pectoral* ones ; it happens, I say, that another evacuation which had been deciding gets the better of that of the breast at least for some time, and in this case the pulse changes pretty suddenly, and becomes, for instance, *intestinal*.

If the pulse has continued *pectoral* the space of a whole day, that is twenty four hours or thereabouts ; it indicates that the reduplication of that day has fixed the crisis in the region of the breast.

This however does not hinder the pulse, which had appeared *pectoral*, and pretty *decisively* so, and even *continued* for two days or more, from being altered by another kind of *critical* pulse : but this last modification of the pulse then only retards the expectoration without suppressing it entirely ; because one, two, and *a fortiori* many critical reduplications which were determined towards the breast, have made an impression on it, or to speak more properly, established a determination, which, to

to be favourably terminated, ought to be followed by expectoration : besides the case now lying before us enters into the class of *complicated* and *compounded* pulses, concerning which there remain some observations to be made.

There are many remarkable combinations in the *compounded pectoral* pulse; let us take, for instance, the PECTORAL pulse COMBINED or *compounded* with the *intestinal*: the *pectoral* pulse shews itself at first alone, and continues two or many days, so as that the *intestinal* succeeds it afterwards ; or the latter precedes the former. It happens also that the *pectoral* and *intestinal* meet, and in the same paroxysm, either mixed with each other, during all the time of the paroxysm, or distinguished, as the one shews itself in the beginning and the other in the end of the paroxysm.

Such combinations are met frequently in practice. It is certain that each of these two pulses will be followed by it's effect,
that

414 INQUIRIES *concerning the* PULSE.

that is, that there will ensue an expectoration and an intestinal excretion; but in what order and in what time; this is what we are now to explain.

If these two *excretory* pulses are mixed with each other during the whole course of the paroxysms, and if they appear pretty near equally decided, it is a prognostic that the crisis will be performed pretty nearly at the same time by the two organs. We must therefore except these two kinds of evacuations either on the fourth or on the seventh day, according as the two pulses have appeared, in the beginnings, more or less evident, and more or less constantly persevering.

But as it is pretty rare that two excretory pulses have as much force the one as the other; it happens that the one gains the mastery over the other, at least for a time: and the excretion which is indicated by the stronger and more constant of the two, happens before that which is indicated by
the

the weaker and less constant, provided however this order be not troubled by some extraordinary revolution: it is thus, that “ of two pains that commence at
 “ the same time, and not in the same
 “ place, the stronger makes the weaker
 “ disappear*”.

Now this superior degree of force in one pulse which suspends for a considerable time the effect of the other, is generally found in that which has shewed itself first, especially if it has been alone during one day or thereabouts. However, that which succeeds it becomes the stronger, and hinders or at least retards the first; this is an effect usually produced by purgatives administered at a juncture that the pulse is at the same time *pectoral* and *intestinal*; these remedies then determine the crisis towards the intestines; but that of the breast is for the more part only differed. It is even very common to observe, that, when the strength is too much weakened by the

* Hipp. Aphor. 46. Sect. 2.

416 INQUIRIES *concerning the PULSE.*

too great effect or unseasonable administering of purgatives, the crisis by expectoration can hardly be established at it's proper time; it is performed slowly, difficulty, or what is worse, the breast falls into a state of suppuration.

This is the proper place to recal an aphorism of Hippocrates already cited :
 “ if before the malady has been declared
 “ we have felt a pain in any part, that
 “ is the very part where the disease will
 “ itself§”.

Mercurialis also remarks *that the part which has been first affected in diseases is the last that will be disengaged*; hence as we have already said, it is not rare to observe that the pulse which had at first appeared *pectoral*, and had even maintained itself such for two or three days, but with considerable intervals, becomes all of a sudden *intestinal*. The evacuation of the belly, that had begun from

§ Aphor 33. Sect. 4.

the

the first periods of the malady, becomes abundant, and the expectoration does not come on till after this evacuation.

It is proper to remark, that in these cases the days on which the evacuation of the belly is performed, should not be counted in regard to the time for which the *pectoral* pulse indicates the discharge by expectoration: it is a kind of intermittence in the crisis of the breast; nature, thwarted by the complicated mechanism of the malady, has abandoned it, leaving it suspended for some time; but however, without scarce making any fundamental alteration as to the impression and determination which is to bring it back again when the other shall be exhausted.

We shall find sometimes the *pectoral*, and *intestinal* pulse so disposed, that the one shall present itself at the beginning, and the other at the end of each paroxysm; and the evacuations which they indicate, follow pretty near the same order 'till the end of the malady: this kind of com-

418 INQUIRIES *concerning the Pulse.*

bination appears even more advantageous, than that in which the two pulses succeed each other several times, and at inconsiderable intervals, in the same paroxysm.

We find also combinations where the *pectoral* pulse is immediately followed by some expectorations, and soon after ensues the *intestinal* pulse, attended also by its proper excretion ; it is by this succession of frequent alternatives that we see the greatest part of the critical movements exert themselves during the continuance of the malady.

If this variation subsists continually, and particularly if it hath begun to manifest itself on the second period of the malady, it ought to be looked upon as liable to suspicion ; for the critical effort is not established favourably, but in proportion as it turns, to use that expression, to a fixed object ; it is not even rare to observe, that when this effort is thus compleatly made,
the

the crisis becomes afterwards almost general; which brings about the most favourable of all terminations.

It is observed in general, in complicated maladies, that the critical mechanism is in the beginning of these diseases subject to pretty frequent interruptions, or as it were, to fruitless essays; it is thus that by a natural effort, or by a suitable method of treatment, the fixed state of the malady begins to be struck at, and that the critical movement, by degrees, comes to be predominant; and thus in fact we see these maladies have a favourable termination, when such critical efforts are prudently managed, and when, *a fortiori*, they are not baffled by contrary methods of treatment.

As to the time on which the *pectoral pulse*, complicated with that of *irritation*, indicates the expectoration, we can't flatter ourselves to determine them exactly, at least by the observations hitherto made;

it is very true that, in general, these excretions take place in the last periods of the maladies ; but there are some wherein the expectoration appears on the first days ; they are half critical, half symptomatical, which is not easy to decide. The whole depends, in these cases, on the former disposition that keeps up the *complication* : two or three *pectoral* pulsations, joined to an undetermined number of *uncritical* ones, precede the expectoration sometimes for one day, sometimes for several days ; the process of the excretions is as irregular in *complicated* maladies as are all the other symptoms ; if, from the first critical days, or towards the second period of the malady, on which the pulse appears *pectoral*, it does not totally banish the pulse of *irritation*, the malady bodes but an uncertain and alarming tenour.

It is upon this occasion that suppurations are to be apprehended, such as happen usually towards the end of the second period of the malady, when a critical evacuation that should be decided, is not ;
it

it is then, especially towards the end of this second period, that a suppuration is to be feared, except the malady is grafted on an elder indisposition, very apt to turn to a suppuration.

It must be remarked, that we have confined ourselves in this chapter, and in all the course of this treatise, to divide maladies into three periods, that of *irritation*, that of *concoction*, and that of *evacuation**.

The critical excretions don't usually happen 'till towards the last periods, and the species of pulses that indicates them, precedes them by four, seven, or two days, pretty nearly.

This is the reason we have always been contented to assert, in prognosticating any evacuation, that it would *happen pretty nearly on such or such a day*, without determining precisely the day, as the antients did.

* Consult on this head Chap 25.

This was the method that appeared the most proper to reconcile, as far as it was possible, the antients and moderns, or rather the partisans of the crisis or critical days, with those who pay no attention, either to crises, or the days on which they happen †.

The antients, very much attached to the critical days, have given, through a prejudice founded on the philosophy of Pythagoras, a particular and intrinsic virtue to certain days, rather than to others ; it was an excess, it was a system then adopted too generally, and could not avoid leading people even into gross errors.

But we can't deny, that there are periods, times, days, and important moments, very necessary to be remarked in the course of maladies : it is not the days in themselves, and the odd or even numbers that have a particular virtue ; it is the maladies that have periods, or stages, longer

† Vid. *Encycloped.* 4. Vol. at the word *Crisis*.

or shorter, in different subjects; it is not to be doubted, but the times of *irritation*, *concoction*, and *excretion*, are pretty nearly as manifest in the greatest part of acute diseases, and probably of chronical diseases, as they are in the small-pox: these times may have, and have often, pretty nearly, the same duration in different subjects; but there are many, in whom they are neither shorter nor longer, without it's being proper to neglect them for that reason.

The capital point is, to seize, in a malady, the signs which indicate the most constantly these revolutions or states of *irritation*, *concoction*, and *excretion*, this is what the changes of the pulse seem to indicate, as we may conclude from the observations related in this treatise; so that one may follow, favour, and wait for the crises according to the principles of the antient system, without, however, expecting them on a fixed and determined day. It is true, there are some whose decision and duration can be determined, nearly within a

424 INQUIRIES *concerning the* PULSE.

few hours ; but there are also, some that are protracted, retarded, or lengthened by some hours and some days. In a word, a judicious and sensible observer, will be always cautious not to be so exact and peremptory, as to the times and fixed days of the antients ; but he will always find, in diseases, very distinct periods or times, which have been too much overlooked by the enemies of the crises, and critical days.

It must be remarked, secondly, that we have not determined any thing certain in the course of this performance, concerning the quantity of the excretions indicated by their particular signs ; to wit, that we have not found any fixed method to decide, whether a critical evacuation is to be abundant or inconsiderable.

The strength of the pulse, the age and constitution of the patient, as well as the manner that a disease shall be treated, may serve in general, to determine the quantity of the excretions indicated by the critical changes of the pulse ; but we must expect,

on

on this head, further observations performed with all necessary care.

We must not forget what Hippocrates has pronounced on this matter, to wit, that *excretions not abundant are not quite critical*; this is what is particularly important to make those persons remark, whose aim is always, *to diminish the quantity of the morbid matter, to make it more fluid, more moveable*; these laws, which are too general, require many restrictions that are not to be expected from those who have received them, as so many axioms, in the schools; but only from those who have convinced themselves, by experience, of the *indifference, inutility, and even of the danger of liquid remedies, evacuating, diluting, dissolving*, that are looked upon as proper to *exhaust the heat, to evacuate the matter by all the emissive parts*, we have already remarked, in the twenty-ninth chapter, that these kind of remedies, that these methods never perform what they promise, and that they deceive. In short, all that has been detailed with regard to the *pectoral* pulse, and the time when it announces the expectoration,

may

426 INQUIRIES *concerning the* PULSE.

may be applied to all other kinds of excretory pulses.

We must observe, first, that the bleeding at the nose being as often symptomatic as critical, happens, therefore, sometimes, during the irritation of the diseases, consequently, without following any determined order: one paroxysm produces often, in respect to the bleeding at the nose, what it does not do in respect to a critical excretion, to wit, it retards it, or accelerates it prodigiously.

Secondly, The longer the intervals are between the natural evacuations of any organ, the more must we put back the time on which it will happen, after it has been indicated by the pulse: this regards the courses of women, they are often predicted by the pulse, whole months before they happen, we may say as much of the hemorrhoids.

Thirdly, In fine, we must never lose sight of the effects which remedies may produce,

duce, on the course of the evacuations. In general diluents; purges and bleedings, often retard the crisis: clysters have the same effect, particularly in respect of the evacuations of the belly: it has often been observed, that the pulse being decisively *intestinal*, clysters administered at that time, exhausted by degrees the matter of the evacuations; which is proper to remark, that we may not thence draw a proof against what we have established concerning the critical pulses, usually followed by the evacuation which they indicate.

These observations, and others of the same nature, cannot be properly estimated, and put in their proper place, 'till the matter which is the subject of this chapter, shall be thoroughly completed, and of which, we here only present a rough draught to such as shall turn their views to enquiries of this nature.

Solano judged, that a flux of blood was nearer, or more remote, as the *reboundings* were more or less frequent; he expected likewise,

428 INQUIRIES *concerning the* PULSE.

likewise, a critical diarrhæa, sooner or later, according to the distances of the *intermittences* from each other; he followed the same rules in respect to the *inciduus* pulse, or that of sweating. These rules, however, are not entirely conformable to observation.

As to the quantity of the critical evacuations, the force of the *reboundings*, particularly that of the second stroke compared with the first, announced to Solano an abundant flux of blood: the length of time that passes in the intermission, indicated, according to him, the quantity of the matter that was to be evacuated in the diarrhæa: and the quantity of the sweat was in a ratio compounded of the number and the force of the high pulsations. All this requires further examination.

It is necessary to consult the works of this author on all these propositions, in order to form a just idea of his system. Mr. Nihell, who seems, in this respect, not to
be

be of his opinion, *leaves to be determined by prudent and unprejudiced persons, what we ought to grant to Solano in this respect.* We expect likewise, the same candid judgment from observers on this subject, and on the differences from the system of Solano, as far as we don't think proper to adopt it; because, what has been advanced in this chapter, will appear exactly correspondent to observation.

C H A P XXXIV.

On the changes that are produced in the pulse after the action of Emetics, of Diluters, Purgatives, Bleeding, and Opium.

WHEN the pulse which had been *convulsive and uncritical*, during the first periods of the disease, becomes *developped or uncritical*; it is always, or almost always, a very good sign. It has been already
ready

ready said in chapter twenty-three, that it is a great happiness when the pulse becomes *developped*.

Nothing demonstrates better, the happy concord of art and nature, as well as the utility and necessity of remedies, than the favourable changes by which they are followed. These happy changes are easily remarked in themselves; it would therefore be useless to make a detail of them, which could only tend, to prove the good effects of remedies in diseases; these good effects are not doubted in this age; they are generally known, or acknowledged by every one.

There are particular effects of remedies which are less known, or less attended to; the principal object of this chapter will be to treat of these kinds of changes.

Some are bad, others are *indifferent* * : they are bad when the disease evidently
grows

* It must be remarked in regard of this denomination; that the question here is only about the pulse; this remark is important in respect to all that is said in this chapter concerning

grows worse after the effects of these remedies; they are *indifferent*, when the disease goes on in the same pace, and follows it's ordinary course.

Now, that remedies may sometimes produce bad effects is a thing that can't be doubted of; but that the effects of remedies, and consequently the remedies themselves, can be *indifferent*, is a thing which is not less certain, for being subject to many contradictions, drawn particularly from systematical notions.

We may venture to advance here, that the class of *indifferent* remedies is as numerous as is that of good and bad ones: it is in this class that we must range the greatest part of *national* remedies, those that are in vogue for a time, and that are soon out

cerning different remedies; there is precisely nothing else examined here but the effects which they do or do not produce in the pulse. It would be going directly contrary to the intentions of the author to make his propositions too general: thus such as would pretend in general that the author asserts there are *indifferent* remedies would make him say more than he means; he means only that there are remedies *indifferent in respect to the critical states of the pulse.*

of

of fashion; the greatest part of small preparations, and particular forms, powders, salts, which rise and fall in every age.

It is impossible, if we do not allow this *indifference* of certain remedies, to reconcile the practitioners of different countries, and different ages; there is no such thing as physick if it is not, and if it ought not to be the same essentially, in all times, and in all places; and it can't be *universal*, if many remedies, that are in vogue for a time, and in a certain country, are not *indifferent*.

The Arabians encreased prodigiously the list of *indifferent* remedies, which were in use amongst the antients: the chymists, still more inventive than the Arabians, and especially, more bold and enterprizing, have not ceased to abuse the credulity of their partisans, and to multiply these sorts of remedies.

We have confined ourselves here to what regards particularly the effect of remedies
on

on the pulse : it is evident, that there are many which scarce produce any change in it, they should therefore, be looked upon, as *indifferent*, in respect to that object : the remedies are, on the contrary, useful or prejudicial to the course, and to the alteration of the pulse, according to the effects which they produce in it's *critical* or *uncritical* movements.

Now, it follows from all that has been hitherto laid down, that a remedy produces a good effect on the pulse, when it *develops* itself, or makes it *excretory*, or when, from *uncritical* and *complicated*, that it was, the effect of the remedy makes it *simple* or *critical* : this effect is bad, on the contrary, or prejudicial to the course of the pulse, if it makes it *convulsive* and *uncritical*, from *critical* and *developped*, that it was before, or when from a *simple* or *excretory* pulse, the action of the remedy makes a *complicated*, or a pulse not *excretory*.

A remedy is therefore indifferent, in respect to the pulse, when it changes no-

F f

thing

434 INQUIRIES *concerning the* PULSE.

thing in the actual state of the pulse, and when it remains such as it was before the application of the remedy, *uncritical, developed, or excretory,*

We may easily see, that we have here set aside the effects which remedies may produce on the *frequency, force, hardness, fulness, softness,* or on the *weakness* of the pulse: the examination of those vague and undetermined characters of the pulse, does not belong to the purport of this treatise.

We also pass over in silence, the effects that may be produced in the pulse, by *specific* remedies: there are some, perhaps, which stopping all of a sudden, or abridging considerably, the course of the disease, make the pulse pass abruptly from one state to another, and render it, for instance, *natural and healthy,* from *convulsive and uncritical* that it was; without making it go through all the degrees, through which it usually

usually passes in a malady treated, as we say, by the generally used remedies: this subject we do not discuss in this place.

But we must be greatly on our guard in judging of the effect a remedy has on the pulse, not to ascribe to the remedy the changes which depend necessarily on the nature and progress of the malady; the pulse should be, and is usually *uncritical*, and not *developped* in the first periods of the disease; it *develops* itself afterwards, and often spontaneously: this *development* not having any dependance on the remedies that have preceded it; it is thus that the *dilatation* of the pulse, which appears during the hot fit of an ague, depends as much and more on the cessation of the spasms, which occasioned the shivering and the *contraction* of the pulse, than on the succours employed against the shivering while it subsisted.

When Baillou speaks, “ of a pulse that
“ was very alarming at the begining of a
F f 2 “ disease,

“ disease, and that returned to it’s natural state, by the use of purges †:” when we hear every day repeated the like success of different remedies. We cannot always clearly decide, whether this happy success is due to the remedies, rather than to the natural course of the malady. We must never lose sight of such reflexions, in the estimation we make of the remedies; they are, however, much neglected now a-days.

It is not precisely with respect to the immediate and near changes, that we must judge of the effect of a remedy on the pulse: a modern author says, very judiciously, that, “ whatever the weakness, “ fatigue, and even the sufferings of a patient may be, on the first or second day “ after the use of remedies, these transient “ symptoms alarm only such as are not acquainted with the history of maladies ‡.”

† Epid. Lib. 2.

‡ Fizes, treatise on fevers.

This reflexion must be applied to the changes of the pulse; to wit, that we must in general expect to find it *embarrassed, disconcerted*, more or less *changed*, during the effect of a remedy that is somewhat efficacious; there is not one of this kind which does not occasion a revolution that may be compared to the effort of a laborious digestion, or to the slight fit of a fever.

It is probable, that by the means only of such a revolution more or less speedy, the action of the remedies can accelerate or abridge the march or progress of a malady; it is easy to comprehend, that the pulse must be impressed by this extraordinary *shock*; it becomes, during the operation of a remedy, more or less *close, convulsive, intermitting, irregular*; but we must not judge of it's state precisely by the modifications that appear in it during this forced revolution, that lasts, at most, but twenty-four hours, or thereabouts, and after which, the pulse resumes a fixed and decided course.

We may, with these precautions, apply to the observations on the changes of the pulse, what authors have remarked concerning different remedies.

Emetics.

“ I have been often surprized, says
 “ Sydenham, the ease emetics procure
 “ in maladies, whose tenor becomes al-
 “ ways more favourable after an emetic,
 “ than it would have been without it; this
 “ is what makes such medicines often
 “ suitable in the beginning of diseases.”

This remark is become a kind of axiom in physick. We may safely assert, that nothing so much illustrates the practice of modern physick, as the speedy and favourable effects often produced by emetics, which the antients did not manage so dextrously as the moderns.

The appearance of the *stomachal* pulse favours the effect of an emetic, and may
 serve

serve as a certain indication when to give it; if the pulse becomes sensibly *developped* after the effect of the emetic, it is a proof, that it had been seasonably given; if the pulse becomes *concentered*, more *convulsive*, and more *close*, it is a proof, that the pulse was not *excretory* when the remedy was administered.

An emetic sometimes succeeds very well when the pulse is *complicated*, that is when it is *excretory* or *critical* in some pulsations, and *uncritical* in others: even a forced vomiting unravels, to use that expression, certain states of irritation, and gives the pulse all its freedom.

It must be observed in regard to this *forced vomiting*, that it is not always easy to procure it, even by a considerable dose of an emetic, particularly in complicated cases: practitioners know that this opposition of the stomach to the action of an emetic is a bad omen, besides the emetic which has had its effect the first time in a disease, may often not produce that effect

in the course of the same malady; which plainly proves that it is necessary for the happy and compleat effect of a remedy that nature should lend her assistance to it's action.

The effect of an emetic on the pulse and the state of the malady is sometimes very singular and remarkable; it suspends, to use that expression, all the symptoms of the malady and its course; it seems terminated, and it is only calmed or composed; the pulse returns then pretty nearly to its natural state; scarcely is it *feverish* and somewhat *close*; soon after it resumes its force, and all the symptoms of the malady present themselves a-new.

So that it may be truly said the emetic has brought on a too speedy calm; that it has, if we may be permitted to say so, occasioned a sort of good too remarkable in stopping the malady in it's progress: if there be diseases which are totally carried off, and which appear no more after this calm,

calm, there are many that revive again with very internal symptoms: it seems as if this suspension of the symptoms occasioned by the emetic, made, in the course of the disease, a particular period, which is not to be reckoned in the account of it's days: this deserves greatly the attention of all diligent observers.

Diluters.

“ It is dangerous to cool patients too
 “ much *. It is to be feared least the
 “ heat of the fever may be quenched by
 “ cooling medicines †. It is proper to
 “ be cautious even in the use of alter-
 “ atives not to croud them suddenly into
 “ the bodies of patients ‡. The use of
 “ cooling remedies, or at least of tem-
 “ perating and humecting ones should be
 “ proportioned to the strength, hardness

* Hipp. Aphor. 51 Sect. 2.

† Languis, lett. 40 lib. 1.

‡ Hequet comment del 'Aphor. 51 sect. 2.

“ contraction

442 INQUIRIES concerning the PULSE.

“ contraction of the pulse, and to the in-
“ tenuity of the fever ||.”

It would be in vain perhaps to add here the reflexions of a great number of authors upon the abuse of diluters; the prejudice, generally now received, orders persons in a fever to *drink abundantly*: people never cease preaching to them that they *should drink*, and drench themselves; these are the first axioms of vulgar practice.

We must suffer this prejudice to wear out insensibly of itself, as hath been the case with many other prejudices in respect to several remedies not less *indifferent* than is the great quantity of drink.

It is no small reproach to the most generally received theory, that we can attribute to it all the inadvertences or the inconsequences in which people fall, in respect

|| Quesnay, traite des fevres T. 2 consult, above all, *Institutiones ex novo Medicinæ consputu*, where there are important reflexions on this subject, and upon the power of remedies. See also the word *Chaleur*, dict Encyclop. vol. 4.

to the necessity of drinking in diseases: the theory of the inflammation sprung up at Mountpellier from the disputes of Voricusses and Chirac; this theory too far spread, too much in vogue, too much made use of in the cabinets and schools, has taken too deep root, particularly in common heads: the history of the *resolution* of inflammations, as well as of what they call the *relaxation of the parts*, are not yet sufficiently known*.

What is very singular, that is in following step by step, the theorists who are mostly inclined to recommend *copious drinking*, we may prove to them that nothing appears so opposite to the practice of *abundantly drinking*, as the principal tenets of their own system.

They have been used to consider the continued fever as a *disposition kept up by the matter that is continually passing from the great ducts, primæ viæ into the blood*; if

* Thes. des eaux d' aq. thes. 27, &c.

444 INQUIRIES *concerning the* PULSE.

they propos'd to themselves to make sure this passage, to make it more continual, how could they otherwise go about it than by making the patients drink plentifully?

They don't fail to recommend the use of bleeding, that the diluters *may more easily be conveyed into the blood, find more room there, and form considerable currents in it*: that is to say, according to their principles, they take away the blood, perhaps very pure, to put into it's place aqueous liquors, charg'd with the impurities which they found in the stomach.

If they say that the *morbifick matter* which the aqueous remedies carry into the blood is *dissolved* in too great a quantity of water to be able to do any harm. We may answer them that the aqueous particles of the drink pass off very quickly by urine, which is clear and abundant in proportion to the drinking, and that which they call the *morbifick matter* remains in the blood.

Be that as it will, it often happens that the pulse of patients who have *drunk abundantly*, is greatly *embarrassed* in it's movements, particularly when the drink fills and vellicates the stomach and intestines; but every thing considered, the observations that have hitherto been made incline us to look upon the use of drinking more or less copiously, as a remedy pretty nearly *indifferent* with respect to the critical march of the pulse; we put this matter in the rank of those that require further examination.

We must distinguish in the effects of diluters and of aqueous remedies, those which they produce in *washing*, as they say, the *blood*, and in acting as alteratives, from those which they produce as evacuatory: a great quantity of liquid drank precipitately purges sometimes and thereby produces remarkable changes: it sometimes occasions abundant sweats, and in that case it notably changes the pulse.

Purgatives

Purgatives.

It is not only among the moderns that there are disputes in physick concerning the application of purgatives in acute diseases: it is well known how many commentaries this aphorism * of Hippocrates hath occasioned, “ we must purge the
 “ concocted humours, and not the crude,
 “ not even at the beginning, except they
 “ swell, but they rarely do swell.” We must seize on the moment of the *turgescence* of the humours.

The manner that Hippocrates expresses himself in another place, plainly proves that the Physicians of his time did not agree in respect to purgatives: from whence we ought to conclude, that the partisans of Hippocrates have been in the wrong to look upon all the opinions of the great man, as so many decisions from which there is no appeal. It is to be presumed on the contrary, that the greatest part of the laws

* Aphor. 22 Sect 1.

which

which Hippocrates proposed were contradicted by other Physicians whose opinions or works have not come down to us.

“ All such patients as had a continued
 “ fever and have been purged *on the even*
 “ *days*, were never purged too much ;
 “ but those that had been purged on the
 “ odd days *with efficacious medicines*, have
 “ been purged too much, and there are
 “ many that dyed after these remedies ;
 “ and this is the reason why the *antient*
 “ *physicians* have committed many faults
 “ in that respect,” because they knew
 nothing of what we have just advanced.
 The humours are more in movement
 on the odd days, than on the even, and if
 we accelerate this movement by purgatives,
 the patients dye§.

It follows from this remark, first, that
 the Physicians anterior to Hippocrates, and
 whom he calls *Antients*, administered pur-

gatives indifferently on all the days of the malady; secondly, that the method of Hippocrates was to prescribe them *on the even days*; thirdly, that the purgatives in question in the passage of Hippocrates, are *efficacious purgatives*. We shall see in the sequel the use that may be possibly made of these reflexions.

The fear of the bad effect of purgatives has at all times made so great an impression on the minds of physicians, that they have never ceased condemning the use of them: Aesclepiades forbid them, as being *great enemies to the stomach*: Hofman would not have failed discovering among the antients and moderns authorities to cite when he advanced, that “ the abuses
 “ which have crept into physick in respect
 “ to purgatives, are very considerable in
 “ this age; because many persons are of
 “ opinion that it is only by reiterated purges diseases can be surmounted, whilst
 “ it comes to pass, that by the frequent use
 “ made of them, the strength of the
 “ patients

“ patients is exhausted, and the maladies
 “ prolonged, from whence arise a thou-
 “ sand inconveniencies †.”

The instances of superpurgations have always alarmed such Physicians as have been the most dispassionate for any particular opinion, and the least suspected; it is hence that Baillou advances, “ that he
 “ has often observed and verified above a
 “ hundred times, that ordinary purges,
 “ administered *at certain times* of the dis-
 “ ease, caused superpurgations ‡.”

There have been, however, always physicians who were warm sticklers for purgatives, administered even at all times of the maladies: Chirac ought to be placed, among the French, as one of the first in this class; the manner in which he expresses himself on this head, deserves our attention:
 “ the resolution and separation of the
 “ humours don’t happen till after the seven-
 “ teenth, fourteenth, and twenty first days,

† Fred Hoffman M. M. Chap 7. liv 1,
 consult. 84.

‡ Baillou

450 INQUIRIES concerning the PULSE.

“ *but we may always purge in the mean*
 “ *time, purgatives never act so as to empty*
 “ *absolutely, but after the seventh, four-*
 “ *teenth, or twenty-first, tho’ it may be*
 “ *dangerous not to purge patients before*
 “ *that time||*”.

We must judge of all the other authors by what we have just related of those that have been cited: all the physicians may be divided into three classes in respect to what relates to the use of purgatives.

Some, like Asclepiades, do without purgatives, and scarce ever administer any; others, on the contrary like Chirac, employ them as often as possible, and as a modern practitioner says ¶, *at least every second day*; they have no regard either to the time or day of the malady: the third class, in fine, who have, after the example of Hippocrates, taken the middle road between these two opinions, apply purgatives on certain times, or on certain days of the

|| Treatise of malignant fevers.
 on fevers.

¶ Fizes treatise

malady, in preference to other periods and other days, whereon they are of opinion that purgatives will be prejudicial.

A performance that should terminate this dispute, would be a very valuable treatise in physick ; it is above the capacity of one person alone ; wherefore we shall here confine ourselves to some reflexions that have an immediate relation to the history of the pulse ; and such as regard only the opinions of Hippocrates and Chirac.

Of all the prognostics that denote the *swelling, abundance, or turgescence* of matter which Hippocrates speaks of in the above cited aphorism, the pulse seems to be the least liable to suspicion, and the most clear : if the pulse is *intestinal*, it is an evident sign that nature makes an effort to evacuate the matter contained in the *primæ viæ* ; it is in this case that we may purge without any risk, and that purgatives succeed, as daily observation demonstrates.

But the more the pulse is *intestinal* the more is it to be apprehended that a superpurgation will ensue, particularly when we administer purgatives that are somewhat strong; this is also a fact founded on observation.

It would follow from these two remarks, that we should never purge but when the pulse is *intestinal*; however, practice discovers, that purgatives, even the most powerful, are proper in cases where the pulse continues, to use that expression, *oppressed*, and in an *uncritical* state, by the presence of the matter in the *primæ viæ*: this is the case of the maladies which have been treated of in the twenty-eighth chapter, and which tho' *humoural*, appeared all of a sudden *nervous*; it is also the case in certain chronical disorders, as in swellings subsequent to fevers, &c.

The proof that purgatives have succeeded, is when, after their effect, the pulse remains more or less sensibly *intestinal*, and
without

without *irritation* ; which demonstrates that it only wanted to take on that modification to which it was inclined, but to be determined thereto by the action of a purgative; this is a case wherein active physick shines most.

We must then carefully distinguish the species and degree of *irritation*, as well as the cause of the *uncritical* state of the pulse ; if this state proceeds from a considerable degree of *spasm* and *sensibility*, there is every thing to be apprehended ; and little to be hoped from the application of purgatives ; nay we should expect a sort of superpurgation, more prejudicial still than those we have above treated of : we ought to apprehend an inflammation of the bowels, and it's consequences : if the pulse is only *oppressed*, and has a *consistency*, *slowness*, a moderate dilatation, it is a sign that it does not *develop* itself in that case, on account of an inaction, of an insensibility of the bowels, which purgatives quicken with success.

Purgatives act then, pretty nearly, as emetics, less by the evacuation which they occasion than by the impulsive twinges which they give the bowels: now it is proper to observe, in respect of emetics, how the rule of Hippocrates that forbids purging when there are no signs of *turgescence* or abundance of matter, does not extend to them. This remedy, oftentimes less decisive or of less consequence, than purgatives, particularly when the pulse is *superior*, may be ordered in almost all the states and all the periods of a disease.

“ Dumoulin said, after sixty years practice,
 “ that he seldom repented his having
 “ prescribed an emetic, and that he had
 “ often repented his not having prescribed
 “ one.

If the presence of the *simple intestinal* pulse, and that of the uncritical without irritation, permit the application of purgatives, we must be very careful not to have recourse to them while the pulse is in other states; if
 it

it is simply *developped*, and in a state of *weakness*, without indicating any particular excretion, it is to be feared that the action of a purgative will make it *complicated*, that it will deaden it's force, and that it will hinder the salutary efforts which it seems to make to raise itself: if the pulse is decided for any *critical* evacuation besides that of the bowels, if it is, for instance *guttural*, or *pectoral*, it is certain that every thing is to be feared from the effect of a purgative; except there remains in the pulse an *irritation*, or *complication*, occasioned by the presence of the matter in the primæ viæ: now this irritation may sometimes give the pulse a disposition to a symptomatical *rebounding*, which successfully yields to the effect of the purgative; this does not happen if the *rebounding* is critical: but emetics succeed always better, in that case, than purgatives.

We can't help being surprized at the conformity of the ideas of the physicians, whom Hippocrates called *Antients*, with

456 INQUIRIES *concerning the* PULSE.

those of the Moderns : the former purged as the latter do, on all days of the disease ; we may therefore say that physick, in this respect, has made very little progress : but why has Hippocrates abandoned the ideas of his predecessors concerning purgatives, and why have the Moderns abandoned the opinion of Hippocrates, which was to purge *only on the even days* ?

We have remarked above, that the purges Hippocrates spoke of, as he reproached his predecessors for having administered them on all the days of the malady, were *efficacious purgatives* : now the species of purges employed by the Moderns in acute diseases, would not certainly have deserved that denomination ; by judging of the force of purgatives, according to what Hippocrates must have thought of them, he who did not know any thing of our *minorative* purgatives, which are most commonly in use : these *minoratives* would probably have been looked upon by Hippocrates as pretty *in-*
different.

different, and they are so, often, in reality ; from whence it follows, that the moderns, who employ minoratives on all the days of the disease, are not therefore directly opposite to Hippocrates, who judged that *efficacious* purgatives should be employed only on the even days.

The manner that Chirac explains himself in a passage already cited, does not sufficiently clear up this question to make it be looked upon as a matter decided ; *the resolution of the humours*, says he, *does not happen, till after the seventh day, but we may however purge in the mean time: we may purge*, that is to say, we may employ minoratives, or INDIFFERENT remedies ; but that is not what is called *purging*, in the sense of Hippocrates. It is true that Chirac adds, it is *dangerous not to purge before the seventh, and twenty-first* ; this is the great question that is not, certainly decided against Hippocrates, and in favour of Chirac, tho' even we were to give to the opinion of the latter, all the authenticity

city possible; in fact, there would still remain to be decided, whether, in *purging before the seventh and twenty-first*, we must not chuse the even days according to the opinion of Hippocrates: that is to say in one word, whether it is not necessary to chuse certain periods in preference to others in the application of purgatives; instead of making it a rule to purge *at least every second day*.

Let us again hear Chirac, on a subject which cannot appear of little importance to the true lovers of the art: the seventh day, says he, *is a respectable day, and which requires the suspension of powerful remedies*: one of the most powerful remedies is doubtless purging, it must not be employed on the seventh day, according to Chirac; this physician seems therefore forced to lean towards Hippocrates opinion, who said that *we must not purge on the odd days*. We may also surmise that the superpurgations observed by Baillou after purgatives, applied at *certain times* of diseases, had happened on the days noted by Hippocrates and respected

INQUIRIES *concerning the* PULSE. 45,
pected by Chirac, more than by those
that have given themselves out for his dis-
ciples.

What must we therefore think, after
these reflexions of those who never cease
boasting of the use of purgative potions
continued from the first days of a disease
to the last ; it is surprizing that this practice
has made Asclepiades and his partisans fall
into an excess quite opposite, and has
procured against purgatives, the reproaches
which Hoffman has thrown upon them as
well as many other physicians.

It is evident that in regulating ourselves
only by the signs drawn from the pulse, it
would be necessary, as we have seen above,
to chuse in acute maladies, the times on
which purgatives are to be applied. The
indications taken from the march of the
pulse would therefore bring us nearer
the opinion of Hippocrates, and propor-
tionably remove us from that of the phy-
sicians who administer purges on all the
days and in all the states of a malady.

It

It must be allowed at least, that in following this last method we should hazard many purgatives. If they were not prejudicial to the march of the pulse, they would at least be INDIFFERENT enough, being taken from the class of minoratives; and decoctions are now become so common, as to be given with little scruple or choice at these periods: they are administered, in fact, continually, whether in maladies purely *nervous and rebellious* to all crises, or in *humoral* ones, wherein nature usually points out, if not thrown out of her course, the moment favourable to a purgation: *but to keep the body open, to make the bile flow, to cause evacuations;* is all that some practitioners propose to themselves; luckily they employ medicines not very efficacious.

Of Bleeding.

The history of Peter Brissot, physician of the faculty of Paris, at the beginning of the sixteenth century, will give us
occasion

INQUIRIES *concerning the PULSE.* 461
occasion to introduce here some reflexions
relative to bleeding.

The practice established at Paris, in Brissot's time, in respect of letting blood, was to perform it, in pleurisiies, on the side opposite to the pain, according to the doctrine of the Arabians : Brissot shewed that this doctrine was contrary to the opinion of Hippocrates, and Galen ; he tried a contrary with success.

Brissot, discouraged, probably, by the contradictions which he must have suffered at Paris in combating the opinions that were adopted by his masters, conceived a great inclination to travel, even to the new world ; he stopped in Portugal, where he did not fail to propose his doctrine.

Denis, physician to the king of Portugal, and whom we should rank in the number of those men who have made themselves known to the world only by unhappy criticisms ; this man who was willing to set himself up as sovereign master of the
art,

art, maintained, against Brissot, the doctrine of the Arabians ; he appealed to the academy of Salamánca, who decided in favour of Brissot.

The partisans of the latter, who died during the dispute, multiplied prodigiously, Denis raised against them every kind of battery ; they were publicly taxed with ignorance and temerity ; they were represented as innovators and disturbers of the publick repose : the dispute was carried to the tribunal of the emperor, who did not declare himself on either side in this affair ; in the mean time there appeared books in all parts of Europe in behalf of Brissot, whose sectators remained conquerors for some time.

“ Who can help admiring, says Bayle,
 “ on one side, the obstinacy that is re-
 “ markable in mankind in favour of
 “ popular tradition, how ill grounded
 “ soever it may be ; and on the other,
 “ the facility which the public shews in
 “ declaring for or against certain remedies ;
 “ it

“ it is generally carried away by the party
 “ that cries loudest *.

The history of antient and modern physick, furnishes many instances nearly similar to that of Brissot, and especially with regard to bleeding: it might often occasion reflexions, such as those of Bayle.

Former ages have seen physicians not less courageous than Brissot, who combated the opinions generally received on the subject of letting blood; some, in a passion against bleeding, never ceased condemning it, they seemed even disposed to banish it entirely from physick; others made it the remedy for all complaints; they counted their triumphs by the number of the bleedings which they had ordered.

The publick did not fail to take part in all these physical disputes; one while it decided against bleeding; another while it lavished the highest eulogiums on the most excessive partisans of this remedy;

* Diction. art. Brissot.

applauded

applauded those who could impose with the best grace : some pretty epigrams were all that was then required, and served even to console those that were the victims of the most hazardous enterprizes : cities have been divided between the physician who was a *stickler for bleeding*, and the physician who was an *enemy to bleeding*.

It was to be presumed that the discovery of the circulation of the blood would put an end to all these disputes : but that did not happen : it never did any thing else but change, as it were, the terms of the dispute : formerly the question was to know what Hippocrates and Galen had thought, then experience came in as an assistant in the decision, which they found in the works of these authors.

Since the discovery of the circulation, theory took the place of the opinions of Hippocrates and Galen ; people talked of nothing but demonstrations and hydraulic laws, that can hardly be applied to the human body.

In

In a word bleeding has always occasioned warm disputes, and surprizing discussions; it is even proper to remark, all that has been said on derivation and revulsion in this last century, may be looked upon precisely as consequences of the dispute of Brissot, and of his arguments against the Arabians.

But it must be acknowledged to the honour of physick, and of those who have cultivated it with the greatest care, that there have always been judicious physicians, who without associating themselves to any sect have rejected the extravagant notions of the partisans of bleeding, and of the enemies to it: there have always been, and there will always be practitioners of this kind.

We may in a like manner assert that there will arise hereafter bold and singular geniusses, who taking rightly their time, and availing themselves of circumstances to oppose the most received opinions, will

H h

become

become illustrious, some by bringing into vogue the use of bleeding, others by condemning this practice with all their might. All ages have seen such reformers useful in some respects, but very prejudicial in others. The only means of avoiding ridiculous extremes, will be always to estimate exactly the proofs upon which the necessity and utility of bleeding are founded.

Patients left to themselves in acute distempers have sometimes fluxes of blood: this is a fact known and demonstrated in the epidemics of Hippocrates: it was this which probably at first furnished the hint of letting blood; it is the point from whence even some moderns have set out to establish their laws of practice †.

But we must be on our guard in setting out from these principles, so as to neglect nothing of what may throw a light on the theory of bleeding: let us take for

† Vid. Friend com. upon Epidem. and all those that have copied him.

instance,

instance, an observation of Hippocrates already cited in the eighth chapter “ the
 “ daughter of Larissea, who had a burning
 “ fever, was perfectly out of danger on
 “ the sixth day, by an abundant discharge
 “ of blood at the nose, and remained with-
 “ out any fever. Methon was judged out
 “ danger also on the fifth day, by a dis-
 “ charge of blood at the left nostril.

To conclude from hence that Larissea and Methon had too much blood, that they wanted bleeding, that a bleeding would have done instead of these discharges, would be drawing conclusions too general, and which are not even the necessary consequences of the observation.

This is all that can be concluded from it : *the daughter of Larissea was judged quite out of danger on the sixth day by an abundant discharge of blood at the nose ; consequently the daughter of Larissea was on the sixth day, in a state of having need*

468 INQUIRIES concerning the PULSE.

of an abundant discharge of blood at the nose : in the same manner Methon was judged on the mending hand on the fifth day by a discharge of blood at the left nostril ; consequently Methon was on the fifth day in a condition of having need of a flux of blood at the left nostril.

The state of patients who are on the point of having a flux of blood merits at first a particular attention : to consider it as a simple plethora, or as a proof of too great a quantity of blood in the vessels, would be going directly contrary to daily experience.

In fact it is hard to imagine, for instance, that a patient who has been let blood several times, and suffers afterwards a flux of blood, has a greater quantity of blood than he had before he had been blooded, which was the time when he had no such flux.

What passes in women is still more sensible : there are some that have natural

ural and abundant hemorrhages on occasions where they certainly can't be ascribed to a plethora: we see women who have bleedings at the nose or spittings of blood, almost every month, at the end of their menses: it is certain that the evacuation of the menses hath sensibly diminished the quantity of the blood; the bleeding at the nose therefore, or the spitting of blood has some other cause than the abundance of blood: the history of the hemorrhoides furnisheth also many proofs of the same truth.

It is to be presumed that the menses of women depend principally on the movement and particular action of the matrix *, and that the hemorrhoids depend on a particular disposition of the vessels of the abdomen. Now in applying what passes in respect to these viscera to that which happens in the hemorrhages of different parts, we must agree that the state which precedes a flux of blood is a particular

* Vid. les Recherches sur les Glandes.

470 INQUIRIES concerning the PULSE.

disposition as well of the vessels in general, as in particular of those of the part by which the flux is preparing : this state prepares itself by little and little : in the daughter of Larissea, and in Methon, five or six days illness, were requisite to effectuate this preparation.

We can no more assure, that the diminution of the blood, by bleeding, would have served instead of the revolution, which must have passed, in procuring the hemorrhage, than we can assert that letting blood hinders the menses, or supplies the place of them.

The time of the malady, whereon the hemorrhage is performed, should likewise be very scrupulously examined. In the daughter of Larissea, and in Methon, the hemorrhage happened between *the fifth and sixth day* : it however remained to be known whether bleedings placed at other times, would have abated the fever, as these hemorrhages did.

We

We must also be attentive in the history of an hemorrhage, to the part by which it is performed according to the ordinary laws of nature: the menses can never be looked upon as quite perfect and natural, but when they are performed by the matrix; they exonerate principally the vessels, of that part, and remedy by that means, the disorders of the other parts, to which the state of the matrix gives occasion: in the same manner, the fluxes of the hemorrhoides are not salutary, but as far as by procuring the requisite freedom to the vessels of the abdomen, all the organs which have a relation to these vessels are sensible of the effects of that freedom.

The daughter of Lariffsea, and Methon had principally the vessels of the inside of the nose swelled, on the fifth or sixth day of their fever, and by the effect of the revolution which was performed on those days; for this reason the evacuation of these vessels terminated their disease: which we can't be certain would have been produced

472 INQUIRIES *concerning the* PULSE.

by an evacuation of blood by any other vessels, in *strictly* following the usual course of nature.

Those that would follow it with suitable scruple, and prudence, in the application of bleedings, should never fail therefore to consider with attention the state of a disease proper to dispose the swelling of the vessels, which may require a bleeding, the time of the malady, wherein this evacuation ought to take place, and the part in which it should be performed.

It was by following the grounds of these principles, that Galen opposed a bleeding, that was going to be performed, and that he boldly prognosticated an hemorrhage at the nose which ensued, in fact, and terminated the disease. The history of the critical modifications of the pulse, which Galen was unacquainted with, would doubtless have been of great service to him in forming his prognostic.

It is proper to remark in respect to these natural hemorrhages, that it seems that people are somewhat too apprehensive of them : whether they are critical or symptomatical, it is certain that the bleedings by which they pretend to remedy or stop them, don't always produce that effect ; besides if they are critical, it is dangerous to stop them, and if they are symptomatical, they risk occasioning a state of weakness, from which the patient does not recover ; they concur by that means to the diminution or retarding of the critical effort occasioned by the evacuation of the blood ; which occasions the diseases being but imperfectly terminated : this reflexion is a necessary consequence of the remark that has been made after the hundred and seventeenth observation.

The bleeding at the nose in the course of a continued fever, is often taken for an indication of one or many bleedings in the foot ; these bleedings however don't always stop it ; and if it happens that they
are

474 INQUIRIES concerning the PULSE.

are multiplied they *sink* the pulse, or diminish the *force* of it's pulsations; but oftentimes they change nothing in the species of it's pulsations; that is to say, that the *rebounding* proper to the *nasal* pulse is often observed after many bleedings in the foot, and altho' the bleeding at the nose has then diminished or ceased, the artery has no less *tendency*, to make the blood mount to the upper parts; now this *tendency* was precisely what should have been remedied; and what the bleedings were not able to perform.

Hippocrates says in his epidemics that
“ those who in acute fevers, had an a-
“ bundant and copious flux of blood at
“ the nose, have always recovered, and
“ that none of them die, in such cir-
“ cumstances”, this reflexion alone might encourage those who apprehend hemorrhages to a certain degree.

We may conclude from all these remarks on hemorrhages, that those who will take them for a proof of the necessity of
of

of letting blood, can't plead a right to have recourse to that remedy, without taking many precautions, the examination whereof does not belong to this place.

The principal one that we should take, should be to determine whether an hemorrhage is to be critical or symptomatic; in which the history of the pulse might be of very great use: the presence of the *nasal* pulse, quite decided in a fever, attended by symptoms which seem to indicate bleeding, would serve at least to make it a problematical case, whether it would not be more prudent in that state, to wait for an hemorrhage, indicated by it's proper signs, after Galen's example, than to endeavour to substitute in it's room a bleeding, which could not be performed in the same circumstances, and thro' the same organs, by which the hemorrhage was preparing itself: this reasoning might be equally applicable to other hemorrhages.

The obstructions and swellings of the arterial, and veiny vessels, observed on the opening of bodies, serve still as a foundation to the opinion of the necessity of even reiterated bleedings: it must be allowed, that nothing appears more conclusive, or more specious, than the proofs drawn from these observations on dead bodies: people discover in them the vessels very full of blood, it is therefore natural to imagine that this plenitude of the vessels, should have been drained off by bleeding: such was the theory of Chirac, a theory simple, and level to the capacity of every body, and which no one can deny being very plausible.

It is true that, as it has already been retorted on the sectators of Chirac, these swellings of the vessels, are rather the effect than the cause of the disease, and that they are always the consequence of some stoppage, or particular obstruction which is the true cause, that is to be removed.

But

But tho' that were the case, it is not less certain, that the swelling of the vessels form a local malady, which must have it's particular effects; we should always try to destroy it; without counting, that it is natural to imagine, that the relaxation occasioned by the evacuation of blood, may have a happy influence on the cause of the swelling: it is thus, that in the hemorrhoidal flux, in the menses, and in other natural hemorrhages, the evacuation of the swelled vessels, is however very favourable, tho' this swelling is the consequence of a particular obstruction in some of the viscera, and that it is not properly speaking the true cause, that is to be combated.

Why may we not look upon the greatest part of these veiny swellings, which are found in dead bodies, as a species of *internal* or *miscarried* hemorrhages, and as the consequences of the efforts, which nature had made to prepare an evacuation of blood, which art ought to have endeavoured to procure?

We

We must candidly confess, if we give up ourselves entirely to reasoning, the partisans of Chirac, will never want an answer; but if it is necessary that observation should herein agree with their reasonings, it is in vain for them to promise marvelous success by bleeding; the event does not answer what they advance.

It does not follow hence, that those who take another route, and who have scarce ever any recourse to bleeding, are more successful, particularly in complicated and malignant diseases: it would be flattering ourselves too much, to presume that the mere privation of bleeding, could cure those cruel maladies: such as those that are treated of in the thirtieth chapter.

We may even assert in general that the partisans for bleeding, depend too much upon it's effect and their necessity, and that on the contrary, those who have recourse rarely to bleeding, are by much
too

too apprehensive of it's consequences: it is not true that so many patients are lost by the use of bleeding, as one might conclude from the principles of the enemies, to this practice; it is still less true, that those who scarce ever order bleeding, see perish in their hands, so great a number of patients as the advocates for bleeding seem to think.

These mistakes which may be demonstrated by incontestable facts, and by daily practice, even in France, in the Hospitals of Paris, and in those of Mountpellier, proceed from the difficulty of properly distinguishing *useful* and *necessary* bleedings, from those that are *prejudicial* and *indifferent*.

This distinction is what we cannot flatter ourselves to give: we shall confine ourselves to advance in this place, that in regard to the modifications of the pulse, bleedings performed during the *irritation*, or the first periods of a fever, are rarely prejudicial, provided that the *force* of the pulse

pulse permits them, and that the quantity of the bleeding is not carried to a certain pitch.

It is not so with bleedings performed in the second periods, particularly when the crisis is deciding : it is certain that at that time bleedings are very dangerous, as well as in the last periods, except the *critical* state of the pulse is *complicated* with a considerable *irritation*.

So that one may advance that the pulse of *irritation*, may commonly support bleeding, provided the patient be not at the entrance of the crisis, and that he is not come to the last paroxysms, which, considering the loss of strength, can't fail of having fatal consequences.

The critical state of the pulse, requires no bleeding, it can even scarcely suffer it : it protracts then, or sensibly disconcerts the diseases ; now this critical state may be taken if not closely attended to for an
augmentation

augmentation of the fever, which requires bleeding ; it is then followed by very dangerous effects.

It would be necessary, to judge still better of the state which requires bleeding in diseases, to be able exactly to distinguish in the pulse of *irritation*, the character which indicates that the forces of the machine, and the natural course of the malady, will certainly carry off this irritation : this is a point we shall not examine in this place, since we have already said in the twenty third chapter, that we did not enter into a circumstantial examination of the pulse of *irritation*, or of the *uncritical*.

We shall only say, it is to be wished, at present that it were possible to raise some doubts, and fears, in the minds of those who employ bleedings, without taking the proper measures, and necessary precautions. However useful this succour may be in a state of decided *irritation*, tho' it may be often pretty *indifferent* ; notwithstanding it remedies some symptoms, and

482 INQUIRIES *concerning the* PULSE.

does not always discompose the course of the maladies; there are cases wherein it greatly protracts the diseases, to say nothing more.

Our readers will find in the observations of this chapter, the history of some maladies, in treating which practitioners should have been more moderate in regard to bleeding; and we may call to mind here the observations detailed in the first part of the twenty-ninth chapter.

Opium.

It is well known that sleep renders the pulse more *free*, more *supple*, more *equal*, and oftentimes more *strong*, or at least more *dilated* than it is while one is awake; there are even persons in whom sleep makes the pulse *superior*, or very much disposed to become so: we find some in whom the pulse seems disposed to sweating during their sleep.

Opium *raises the pulse*, *dilates* it, makes it more *supple*, less *convulsive*, sometimes
more

more frequent; it gives it a modification pretty near like that which it has in a profound sleep, and which approaches very near towards the *dilated, superior, and sweating* pulse.

These effects of opium, well examined, might serve to terminate many disputes in respect to the use and application of opium: it will be sufficient to insert here some reflexions without entering into any critical discussion.

Opium *develops* the pulse, gives it a modification proper for critical excretions of the skin, or a disposition to sweating, it makes it *superior*, such as it is in a natural sleep; the pulse will certainly take these modifications much more easily when it shall be disposed that way by it's actual modification, by the nature, and by the state of the disease.

Whence it follows, first, that whereas in the beginning of maladies, the pulse is far

from being *dilated*, and that it ought necessarily to remain in that state of *constriction* for the space of some paroxysms, it would be attempting a difficult task, and too premature to endeavour to *dilate* it abruptly, thus opium is not proper, in general, in the beginnings of diseases, either simple or complicated, except they are purely spasmodical.

It is thus that it has been sometimes administered, with some success, in intermitting fevers, at the beginning of the shivering, particularly when these fevers were more *nervous* than *humoral*: this observation is given for a new one in a performance lately published, but it is not so *.

Secondly, but as in the progress, or in the second period of the malady, the pulse left to itself *develops*, or tends to a *development*, except some spasmodical constriction, which must be distinguished from

* Mem. des Correspond. de l'Academie des Sciences. T. 2.

the symptoms assential to the disease, oppose it, one may then try to carry off, by the help of opium, these constrictions, which confine the natural course of the malady; for then sleep alone banishing the too great *sensibility* of the nerves, the malady *terminates*, and the crisis works, precisely by the sole suspension of that *sensibility*.

Thirdly, complicated and malignant diseases, wherein all the organs are more or less weakened and swelled, and not disposed to a happy and speedy critical revolution; these maladies, I say, are not in a condition to support the effect of opium: that which it would produce in the brain, by procuring sleep, would only be prejudicial, since the functions of that organ are already but too much numbed, in most malignant cases; that which it would produce in the pulse, would not be more favourable, since that is in a state of *indelible* and *indissoluble constriction*; now this constriction would become by so much the

486 INQUIRIES *concerning the* PULSE.

more obstinate, as we should the more diminish the state of sensibility, on which alone depend the resources, that can be had in maladies exactly malignant, as hath been shewed in the thirtieth chapter.

As all kinds of critical pulses are often found *complicated* with the pulse of *irritation* even in the last periods of diseases, there are cases wherein the *sensibility* of the nerves and consequently the *irritation* of the pulse being suspended by the effect of opium, the crisis is performed much more happily: it is for this reason that opium may be very properly associated with the remedies fit to be used in crises indicated by the pulse: without even excepting purgatives..

As to the rest, the greater or lesser sensibility of the patients, may render opium more or less useful; and as this sensibility is oftentimes of a nature to discompose nothing in the ordinary course of a malady, it happens that opium, which remedies that sensibility, which is at most
but

but a slight inconvenience, ought not to be looked upon as exactly necessary, in such a case : thus this remedy is not less subject than all others to be looked upon as indifferent in many cases, tho' it has procured sleep, because this sleep has made no alteration in the grounds of the malady : which is important to be considered well in estimating the use that may be made of opium.

As the matter in question in the greatest part of the observations contained in this performance, is the effect produced by remedies in the course of diseases, we shall content ourselves to relate some instances of their unfavourable effects, after bleeding and purges.

OBSERVATION CLXXIV.

A WOMAN about forty was brought to bed of a dead child, at the end of the eighth month ; she made two days before her lying-in, a violent effort to avoid a fall : she felt a sharp pain in the right

side of the matrix, for which she was let blood in the arm; she was on the fourth day of her lying-in, and all seemed to pass on favourably; there appeared however on that day a miliary eruption on the legs, but without any other troublesome accident; the patient was in this state when she heard her husband, as he was coming in the evening, cry out in so terrible a manner, that she thought he was attacked by assassins: she had from that moment, shiverings, and a tremor so considerable as to suspend all the evacuations, and make her breasts immediately sink; the pulse became *close, convulsive, hard*, and the head was seized at the same time: four hours after the pulse appeared to *develop* itself a little, being still however *unequal, empty, inconstant, but with a remarkable stiffness of the tunics of the artery*. I proposed supporting her strength by a slightly cordial potion, and drinks somewhat sudorific, being thoroughly persuaded that there was not a more pressing indication than that of assisting this development.

A Physician of great reputation affrighted on the contrary, by the inflammation and the swelling with which he pretended that all the viscera were threatened, was of opinion to bleed her in the foot; which was immediately performed; the blood came pretty forcibly: soon after the bleeding, the pulse became *weaker, smaller, emptier, the artery remaining always stiff and stretched*, the disorder in the head was not diminished; the patient died six hours after the bleeding; it was the fifth day after her lying-in, and the seventh after her fall.

We must not conclude from this example, that it is always dangerous to bleed lying-in women; but as in the case before us the pulse was the same, that it is observed in many persons in the agony, we can't be surprized at the bad effect of the bleeding, or at least at its inutility.

We might besides cite many instances of bleeding performed in the small-pox,
in

496 INQUIRIES *concerning the* PULSE.

in a similar state of the pulse, and followed by events equally disastrous.

It is very usual to see the pulse take new *force*, towards the close of diseases, and this last effort must not be looked upon as requiring a bleeding; they do nothing else but accelerate death.

This apparent *increase* of the force of the pulse, and it's total sinking after bleeding, are particularly very frequent in fevers wherein the head is seized, and which pass often for malignant fevers. Some administer bleeding which seems to give ease, because it weakens; some soon decide in favour of others, and the patient falls all of a sudden into a mortal dejection.

It is even proper to remark that all these accidents happen sometimes on the first days of malignant *cerebral* fevers; tho' these fevers have been decided but lately, yet they arrive at their close on the first days; because they, as hath been observed

INQUIRIES *concerning the PULSE.* 491
ved in the thirtieth chapter, have passed
over their first periods insensibly.

OBSERVATION CLXXV.

THE pulse is *small, convulsive, weak* during the five first days of a continued fever in an old man; the pulse *rises* and becomes *dilated* towards the end of the fifth day, it becomes somewhat *pectoral*: till that time they dared not administer bleeding on account of the weakness of the pulse; they imagined that was the favourable moment, and they blooded him in the arm, which sensibly diminished the *force* and *dilatation* of the pulse; on the next day, which was the sixteenth, there was a swelling in the breast, and the patient died on the seventh; that bleeding was placed precisely in the moment whereon a pulse *uncritical* as much more so by it's weakness, as by the *irritation*, began to become *critical*.

OBSER-

OBSERVATION CLXVI.

NINE bleedings, performed from the first day, to the seventh, in a continued fever, accompanied with a *delirium*, in a young man of a good constitution: the pulse was pretty much *developped* towards the ninth, and appeared to have a tendency to become *pectoral* and *nasal*; there were in fact a slight bleeding at the nose, and a little coughing on that day; he was the next day blooded in the foot, after which the pulse became greatly *concentered*; eight hours after the patient was seized with a general trembling, which lasted till the next day, being the eleventh, the patient died at the end of that day. They had employed during the whole time, sharp decoctions, with stibiate tartar.

This bleeding in the foot was placed as the preceding, at the moment that the crisis was going to be decided. The bleeding was ordered on account of the increase of the fever, and of the bleeding
at

at the nose, and with a design of hindering an abscess in the head, which they imagined the first bleeding, and the almost continual evacuations by purges, were not able to prevent.

OBSERVATION CLXXVII.

SIX bleedings performed in four days, a pretty sharp fever, with stitches in the side and spitting of blood, the pulse was *small, close, unfrequent*, it seemed to *develop* itself on the fifth day; the fever augments; they perform a seventh bleeding, which they think by so much the better prescribed as the blood was still very fizy; the pulse becomes more *small*, more *close*, and more *convulsive*, than it had been at the beginning of the malady; the breast was seized, and the patient died the day following, being the seventh: oily potions, with kermes, did not produce any remarkable effect.

Sidenham was of opinion that the fizy blood furnished certain indications for the
continuation

continuation of bleeding: he said even that in pleurifies it was more safe to carry off the matter of the spitting by a course of bleeding, than to suffer that matter to ripen by concoction, and dispose itself towards expectoration.

But Sidenham did not consider, that in the greatest part of acute distempers of the breast, the phelgmatic matter abounds and tends always, according to the degree of the fever, to fix on the most affected part: now it happens but too often that bleedings performed in such cases, without proper indications, diminish very unseasonably the forces that would have been necessary to dispose this matter towards an expectoration.

It remains then adhering to the vessels, and cellulary contexture of the lungs, where it forms swellings, soon followed by a gangrenous state, or such as give occasion to slow suppurations; whereas an expectoration well established, would have carried
off

off all that mucous matter, which the heat of the fever alone, and the redoubled movements of the vessels, can make fluid and proper to pass through the excretory vessels.

OBSERVATION CLXXVIII.

AN old man, whose pulse was very *weak* during the first state of a malady, that had no thoroughly determined character, takes the seventh day a purge pretty strong, but which had very little effect: the pulse *rose* that day, was *developped*, tho' *still weak*: it became, after the effect of the purge, *quick* and *concentered*, the belly was swelled and stretched, though without any pain; the patient died on the ninth.

Chirac after the antients, said, as we have remarked in the beginning of this chapter, that we must not apply strong remedies on the seventh day: the *development* began to be made in the pulse of
this

496 INQUIRIES concerning the PULSE.

this old man. Said *development* indicates that nature is labouring for the crisis, but it does not declare the species of evacuations that is preparing; it is therefore always more safe to encourage the *development* than to pretend to decide the crisis by some particular outlets; this precaution is still more necessary in cases where the strength fails, as in the person now under consideration; there are cases where nature resumes her rights, and the pulse it's *development* after the effect of a remedy; but this remedy was then at least premature or *indifferent*.

We find cases wherein an efficacious purge, administered when the pulse is *developed*, decides the crisis by the evacuations of the belly, it is necessary to produce said effect, that the malady should be very *humoral*, and that the patient should be very strong.

OBSERVATION CLXXIX.

A SORE throat in a vigorous young man; the pulse is *developped*, becomes *pectoral* after several bleedings, emetics and decoctions;

decoctions ; the spitting *was thick* and abundant, they administered on the thirteenth day of the disease, a purge which produced copious evacuations, but hardly bilious ; the patient finding himself very much weakened, they got him to eat an egg, with some bread, by stealth ; he had on the evening a violent shivering, the pulse became very convulsive, the breast swelled, the head was seized, and the patient died at the end of the fourteenth day.

There was joined in this case an indigestion, the effect of a purge taken at the time the expectoration was with difficulty deciding ; which absolutely defeated the critical effort.

OBSERVATION CLXXX.

AN inflammatory disposition in the belly, in a young man of a weak constitution, who had for a long time suffered hunger, the pulse is *small*, somewhat *irregular*, hard for ten days ; he was thrice let blood in

K k

the

498 INQUIRIES concerning the PULSE.

the arm, and they employed diluters, oily remedies, and fomentations; towards the eleventh, the pulse seems to be *developped*, the patient coughs; the tongue grows moist; the skin becomes supple, the colour of the face, assumes a more natural complexion, the belly is less stretched, and much less painful; a purge made up of cassia and manna, administered on the twelfth, renders the pulse *concentered*, distends again the belly, and makes the cough cease; the pulse *rises* towards the thirteenth and fourteenth, and seems *intestinal*, There ensues a looseness, during which the pulse becomes again very slight: the patient grows very weak by this looseness, and dies on the eighteenth day.

This was a kind of superpurgation, occasioned not so much by the strength of the purge, as by it's being ill timed. Those who to purge, draw always their indications from the ceasing of the *irritation*, and from the moisture of the tongue, don't consider how these symptoms are proofs,
that

that nature takes the ascendant, and that what they call the morbid matter, is less dangerous, than augmenting the irritation by purgatives; particularly when it appears by the cough, as in this case, that the *development* of the pulse having lasted for a certain time, the doctor may flatter himself that the pulse will become *pectoral*, and that the crisis will be performed by spitting. *We must hinder the malady's increasing and returning; if the fever becomes more considerable the vessels fall into a mortal swelling:* these propositions, and others of the same species, may occasion many mistakes, when taken in too general a sense.

OBSERVATION CLXXXI.

IT has been observed in many malignant or cerebral fevers, which lasted to the thirtieth, or thirty-fifth day, that the pulse which was *small, convulsive*, during the first days, became NASAL towards the sixth, and the ninth, without ceasing to be *convulsive*; there ensued bleedings at

500 INQUIRIES *concerning the PULSE.*

the nose more or less abundant ; bleedings at the arm and foot, decoctions quickened by emetics and other purgatives did not produce in the pulse any very remarkable change 'till towards the twentieth, or twenty-fifth ; then the pulse seemed to *develop* itself ; became *superior, nasal, or pectoral*. There were bleedings at the nose, or coughs with some spitting brought up, with difficulty. Purgatives placed between the twenty-fifth and thirtieth, changed at first the pulse, and made it *convulsive* and *uncritical* : the patients died between the thirtieth and thirty-fifth by swellings which were formed in the head, or in the breast.

Of all the parts that which was most attacked in these malignant fevers, was usually the back part of the nostril ; the swelling in the vessels of the anfractuosities of the nose, seems often to be one of the principal causes of the most dangerous acute diseases, as well as the swelling of the hemorrhoidal vessels, and that of chronical diseases :

diseases. The expectoration that proceeds from the throat, or the nose, the hemorrhage of those parts are usually critical, at the end of such acute diseases; purgatives hinder them by so much the sooner, as the patients are very weak when they are come to this period, particularly if they have been often let blood at the beginning of the malady.

OBSERVATION CLXXXII.

A CONTINUED fever with paroxisms in a person of a good constitution; the pulse was *brisk, hard, frequent*, irregular during the nine first days; four bleedings at the arm, two in the foot, emetics and purges made scarce any change during these nine days: on the tenth, the pulse *devellops* itself; between the eleventh and twelfth, it has a tendency to become *pectoral*; there ensues a slight cough, followed by some serous excretions from the glands of the throat and nose; on the thirteenth they administered a purge, which produ-

ced pretty copious evacuations. That very day the pulse became again *close* and *convulsive*; it remained for three days pretty constantly in that state: it rose afterwards, and the cough appeared again, as well as the disposition to spitting: he was then blooded in the arm, and the next day, being the eighteenth, another purge was administered; which reinstated the pulse in it's *convulsive* state, and made it more *weak* than it had been; and indeed it's strength was considerably abated; the skin became very dry, and the pulse still more *concentered*.

In the mean time they continue keeping the body open, the pulse seems to become more *brisk*, without *devellopping* itself. We perceive some *reduplications* in it, which made us judge that it might become *pectoral*: and in fact towards the twenty-first, there appeared some glewy spittings, not very abundant, and somewhat purulent; the fever continued, without the pulse's becoming more devellopped; the cough becomes more frequent, towards the thirtieth
he

he begins to have nocturnal sweats, the patient being then almost in a marasmus, the expectoration persisted always in the same quality, not coming up with more facility, or in a greater quantity.

C H A P XXXV.

On the precautions that are to be taken, for the application of the rules proposed in this performance: on the exceptions from these rules: on the pulse of old men, and that of children: on the manner of feeling the pulse: remarks on the general causes of the critical changes of the pulse.

WE must have previously formed an exact idea of the different modifications of the pulse in patients, before we can arrive at a thorough knowledge of it's natural state: it is besides necessary to know, what we may depend on concerning the natural state of the pulse, to distinguish it's different modifications in diseases: it

is thus that the ordinary functions of any part, are exactly estimated by the disorders to which that part is subject, and *vice versa*, that we can judge of the maladies of one part, by a comparison with it's natural and ordinary functions.

It has been observed in the first chapter, that *the perfect pulse of adults, is moderately supple, full, easy, free, that it's pulsations are quite distinct, perfectly equal, strong without being hurried, sensible without too much fullness, or too much softness*; this definition deserves some consideration.

Daily experience shews that the pulse of many adults, who seem to enjoy a very good state of health, have not all the qualities specified in this definition: but we must not suffer ourselves to be imposed on by these examples; we may assert that persons whose pulse is not in the state anounced in the above definition, are not so well constituted as they appear, nor as sound as they are vigorous; their
pulse

pulse is *disordered*, and this *disorder* necessarily supposes a discordance in the functions*.

The *suppleness*, *equality*, *freedom*, and *moderate force* of the pulse are necessarily an effect of the most perfect harmony that can result from the reciprocal and well proportioned efforts of all the parts : these qualities are essential to the perfection or complement, of the *absolute goodness* of a pulse.

Whatever may be these reciprocal efforts of the organs, in whatever manner they may influence the movements of the heart and arteries, it appears very certain that since the extraordinary efforts of each excretory organ, occasion in the pulse, each their particular modification, (which is a fact established by the observations contained in this performance,) it must follow that the natural and combined efforts of all these organs, will produce, as it were, a *mixed* change ; now this change will

* See Chap. 26. concerning perfect health.

506 INQUIRIES *concerning the PULSE.*

partake of all the modifications, or all the particular characteristics of the different efforts of the organs, without any one of them having an ascendancy over the others.

Deprived of all *irritation*, or every particular and ruling impression, the *perfect* pulse of *adults* is only susceptible of all these particular impressions; this *susceptibility* supposes a liberty and *indetermination*, which can be found only in a state of *suppleness and perfect equality*. The *equality* which is sometimes found in the pulse of *irritation* supposes a fixed and constant disorder, a state of constraint very opposite to that state of *freedom*, which is an essential character of the *perfect* pulse.

Observations very easily made evincingly demonstrate what has been advanced, concerning the *indifference* of the *perfect* pulse, and the ease with which it adapts itself to all the modifications peculiar to each excretion.

It

It is observable in following closely the modifications of the pulse in an adult of a good constitution, that it takes at the approaches of every excretion, particularly that of the belly, which is the most evident, the modifications proper to this evacuation; it appears even if this change does not happen, that the pulse is so far defective; it is too *hard*, as we shall shew hereafter.

Like, in certain respects, to the simply *developped* pulse which indicates evacuations in general, without announcing any one in particular, the *perfect* pulse of *adults* is disposed to take on every sort of modification proper for excretions, without having any particular one.

It is in this sense only, we may say with Herophilus, that the movements of the pulse have some relation to the laws of musick; but if we would apply to the pulse, the rules of musick, as a modern author has undertaken to do, that would be

be entering into a troublesome detail, which would not be the more useful or better grounded on that account.

It is very true that the natural course of the pulse may be compared, in general and but transiently, with the harmony which results from the well proportioned association of several musical instruments: but this can never be any thing more than a comparison which has no other use than giving a clear conception of what one intends to express.

We may in like manner compare the natural course of the pulse, to that of a ship: all whose particular movements are so combined as to give the vessel a *free, equal* and continued motion; whereas if any of the movements comes to gain an ascendancy over the others, or if it fails, the ballance which results from the combination of all these movements, is disordered. Epicurus was of opinion, that if *the health of the body makes itself particularly*
sensible

sensible in any of the members, in that case it is not general.

In fine it was necessary, in order to have a fixed point, to which one might refer all the particular species of the pulse, to consider as existing in nature, the pulse which has been called *the perfect pulse of adults.*

According to this standard, every physician should necessarily frame to himself an image of perfect health, or a compleat assemblage of all the functions in their state of perfection : this state of perfection does not exist in nature : it is however to this state that a physician refers all his ideas in respect of the health of different subjects, in judging that the health is more or less perfect as it approaches more or less towards that point of perfection, which exists only in the imagination.

We must never, in examining the pulse of different subjects, lose sight of the ordinary causes, that make decisive impressions

510 INQUIRIES *concerning the PULSE.*

pressions on it : these impressions ought to enter into the calculation which is made in forming a judgment on that head.

The efforts of digestion, sensibly changes the moving of the pulse in most subjects, we must not therefore judge of it definitively during that revolution.

Now these changes produced in the pulse, by the efforts of digestion, have a very evident relation with those that are occasioned by a slight fit of an ague ; that is to say, that the pulse at first *closes*, becomes *frequent and pretty equal* ; it *develops itself afterwards by degrees, continuing a little hard, and preserving something of the stomachal pulse*. At length the digestion being finished, and the chyle having entered into the mass of the humours, the pulse becomes more *full, more strong, more frequent* ; which is followed by a state of *ease, freedom, and softness*. But the pace of the pulse of digestion, which has been described, does not take place
in

in all circumstances, but in subjects of the best constitution : we must not therefore look for it in those who labour under distempers, or have habitual indispositions.

In fact these indispositions always make some impression on the pulse, and give it a manifest characteristic of irritation ; this character, which the movement of the digestion cannot destroy, occasions particular *complications* : for which reason the pulse of different subjects seems different during the time of digestion. It is therefore important to pay a regard to the particular species of the disorder to which a person may be subject, through whose pulse we have a mind to judge of the digestion.

There is still more to be added, to wit, the particular *rithmus*, that the pulse assumes during the digestion, particularly towards the end of it, when the pulse tends naturally to *develop* itself : this *rithmus* often perfectly indicates the disorder of a part, or
of

512 INQUIRIES *concerning the* PULSE.

of a side of the body, which we should not have thought of by feeling the pulse before the time of digestion.

Thus it happens sometimes that the action of a hot bath, which ought naturally to *develop* the pulse, and make it more *full* after a certain time, gives it a particular modification, depending on the irritation of some organ, which did not discover itself in the pulse before it had been *develloped*, or at least *raised* by the action of the bath.

It is thus, that sometimes in feeling the pulse of patients who are in a state of drowsiness, and even in that of a crisis, we however observe the pulse to be *equal* and *uncritical*; whereas when we awaken the patient, and thereby occasion some *agitation* in the pulse, we then discover the predominant critical modification.

Daily experience furnisheth instances still more singular; but we confine ourselves

selves in this place, only to the exposition of general phænomena, without entering into a detail, which when the fundamental principles contained in this performance shall be agreed to, will be very easily deduced from thence.

There are subjects in whom the impressions of the pulse, which are the ordinary consequence of digestion, don't appear sensibly ; these varieties have always some particular reason, which it is easy enough to discover.

We may say in general, that these kinds of pulses, whose tenor neither the digestion nor the other functions discompose, are pulses that are too *hard*, too *strong*, that have no *suppleness*, mobility, nor suitable variability.

The pulse should, without doubt, have a *consistence*, *force*, and *tenour* in it's pace ; but it should also be disposed to obey the different impressions of the organs, without being obstinately fixed to a particular

rithmus, which cannot proceed but from some constant point of irritation.

It is to a like cause, that we must ascribe the *immutability* of the pulse in certain subjects; in whom even the progress of fevers, and the critical evacuations of maladies, do at most but change the frequency of the pulse: this immutability supposes a real disorder or malady, always remarkable by it's proper symptoms.

Thus slow maladies, those of a long standing, whose progress hath been insensible, have deprived the pulse of the *liberty* which is necessary to it, in order to be susceptible of the impressions usually made by the critical movements. We see, for instance, persons void blood by expectoration, or at the nose, and have a looseness or sweats, without the pulse's indicating quite precisely these evacuations: there are even women who have their menses without the pulse's participating of this revolution: but these instances are pretty rare; they all depend on the species of *insensibility* with

with which the parts had been a long time seized or inured to, or on a particular state and one contrary to nature*. However, Solano, as saith Mr. Nihell, does not assert, “ that all crises were constantly
 “ preceded by signs in the pulse ; for he
 “ had observed some that had not been
 “ thus announced”.

These remarks naturally introduce the reflexions that are to be made in respect of the different kinds of pulses, in different constitutions. It has been already long since remarked that the pulses are different, in different temperaments ; these particular *rhythmus*es of the pulse, are the necessary consequences of the particular dispositions of different subjects, and prove evidently, that difference of constitution is due to the greater or lesser spring, action, or *sensibility* of certain organs.

We might reduce every species of the pulses of different constitutions, into

* See Chap. 23. concerning the *uncritical* pulse.

516 INQUIRIES concerning the PULSE.

particular classes, drawn from the history of the pulse given in this performance : sanguine constitutions, have evidently a pulse tending to *dilatation, reduplication, force, equality*, that characterize the *superior* pulse ; melancholy persons have almost always the pulse *inferior*, more or less *close, unequal, irregular, complicated* ; bilious and pituitous persons, are nearly related to melancholy persons, in respect to the pulse. One might therefore divide all the natural and habitual pulses, into *superior, or inferior, simple, composed, or complicated, &c.*

This doctrine means, that all the subjects are so disposed, that the efforts of the parts situated above the diaphragma, have a greater effect on their pulse than the inferior parts, or vice versa ; or that all subjects are naturally submitted to the *action* OR DEPARTMENT of a particular organ.

Women furnish, in the different periods of their lives, a striking instance of this
influence

influence of a particular organ's power on the pulse; it is very common to meet with some just near the age of losing their menses, in whom the pulse preserves habitually, for several months, and even whole years, the characteristic proper to the pulse of the *matrix*, as described in chapter twelve: it is evident that in these cases, the *matrix* is in a sort of continual action; whereas this action shewed itself only by paroxysms in the state of perfect health, and in the middle aged.

The women under our present consideration have almost all the fore-runners of a critical evacuation, without it's taking place; it is thus that we find sometimes in disorders meerly nervous, the critical modifications of the pulse not followed by their effect: we might perhaps call these kinds of crises, *abortive* crises, *nervous* crises, crises without *matter*; it is even proper to observe, that when the critical revolutions of the pulse are found in these nervous maladies, we should expect a relaxation or notable change of the ma-

518 INQUIRIES *concerning the* PULSE.

lady, towards the time on which we should naturally expect evacuations.

Young girls, who have not as yet had their menses, and who are arrived at the age of having them, have also often, and during a pretty considerable time the pulse that indicates the menstruous revolution; that is, the proper action or effort of the matrix is preparing, tho' at a distance and by degrees,

Use will teach us to distinguish by the pulse the precise time when the menses are to make their appearance in young girls, and that when we must expect to find them appear no more in old women.

This is the place to recollect the history of those pulses that are habitually more or less *disordered*, and remote from the ordinary dispositions: there are some that are almost always *intermitting*, *irregular*, *unequal*; there are persons whose pulse is always, as it were, *wandering*, even in the time that they are in the best health.

One thing very remarkable in these *habitually* bad pulses, that may be called *false* or *irregular* pulses, is, that tho' they are constantly such in the state of health they change sometimes, and become *better* or at least more *EQUAL*, better regulated in a state of malady. A pulse that is naturally, and for a long time *intermitting*, is not always so, while the fever subsists; and does not resume that character till the fever disappears.

These natural *disorders* of the pulse, these *habitual intermittences*, are the effect of some organical disorder; they indicate or suppose a latent indisposition, or chronic disease, whose effects are suspended, when there is an acute disease.

One may have the pulse *false*, as well as the voice dissonant: the heart and the different arterial ramifications may be subject to tremblings, shocks, habitual spasms like those that are felt in the bowels, and in the different muscular organs: one

520 INQUIRIES *concerning the* PULSE.

may have the pulses of the two sides different, as persons that squint, have their eyes differently turned.

Altho' there are persons that squint, the state of the eyes in diseases, is not the least a rule for physicians: tho' there are false and dissonant voices, all the voices in general are however reduced into particular classes: tho' there are persons that naturally shake in their best health, physicians are not the less attentive to the convulsive movements of their patients.

Be that as it may, pulses habitually irregular, are not critical; Solano has already made that remark; and this remark is not more opposite to the doctrine of the pulses, than are to their system, who think the fever consists in the *frequency* of the pulse, the instances drawn from persons who have naturally the pulse very *frequent*, without however having any fever.

We must in fine observe, in respect of different constitutions, that tho' their
pulses

pulses appear not *similar* in a state of health, they become sensibly so in a state of sickness; which means, that the course of the fever renders most pulses nearly *similar*, at least with regard to the critical or symptomatical modifications of which they are susceptible.

The fever bends as it were all the kinds of natural pulses, to all the critical or symptomatical variations, so that the pulse which indicates, for instance, a critical expectoration, in a pituitous subject is like, or of the same species with that which announces the same in sanguine constitutions: they differ, at most, only by the degree of *force*, which does not change the species.

It is therefore less difficult to reduce the pulses of sick persons, to particular classes, and to range them under the heads that have been exposed in this performance, than to make the same reduction with respect to the pulses in a state of health.

Our readers may perhaps be surprized, that in all the course of this work we have said nothing of the palpitations of the heart: but first it follows, from what has been exposed in the present chapter, that the palpitations are only a symptom of a chronical disease, which disturb more or less the ordinary pace of the pulse: they enter consequently into the history of these maladies; and we must say as much of certain convulsive asthmas.

Secondly, all that can be said of palpitations is exactly detailed in the excellent *treatise of the heart*, published by Mr. Senac, first physician to his Majesty.

Our readers may say besides, it is surprizing that no mention is made in our enquiries of the effects of the passions on the pulse, particularly after what is related of Erasistrates, who knew by the pulse the passion Antiochus had for Stratonice, wife of Seleuchus his father; and of Galen, who
likewise

likewise discovered, by feeling her pulse, the malady of Justa, wife of Boetius the Consult; she was in love with Pylades.

To which we answer, that the particular changes produced in the pulse by the effects of the passions, regard precisely a different species of the *convulsive* pulse: now it is said in the thirteenth chapter, that this *convulsive* pulse is neither analyzed, nor pursued in this performance.

The pulse of infants, and that of old men, deserve particular considerations: the first is as every body knows, extremely *brisk*, and so little *developped*, so little *formed*, that it's critical changes escape the touch, or don't perhaps exist in the maladies, whose course is not so well marked in children, as in adults. The Chinese scarcely ever feel the pulse of infants.

The *intermittence* is, of all the modifications, the most apparent or the most ordinary

524 INQUIRIES *concerning the* PULSE.

ordinary in children, it is very frequent, and of much less consequence than in adults; it is oftentimes *uncritical* because of the CONVULSIVE state that has the ascendancy; it is sometimes *critical*, when there is in the pulse a certain degree of *dilatation* and *inequality*: in general the pulse of infants escapes the observations contained in this performance.

The pulse of women, which the antients have remarked to be more FREQUENT than that of men, is in that respect of the same character with the pulse of children; it is for the same reason very *susceptible* of different changes, and more *variable* than that of men.

The pulse of old men is sometimes *uncritical*, tho' it appears *critical*: age has *retarded* and *hardened* the pulse; it has deprived it of the *suppleness* necessary to it's *critical* revolutions; we must therefore use a great deal of circumspection in the application of the rules proposed to the pulse of old men.

These

These rules never find so few exceptions as in the pulse of adults, naturally well constituted : but we must not despair of reducing one day to known rules, the pulses of children and old men : we may flatter ourselves that we shall arrive at discovering the reasons of their *singularity*, by help of the principles established, as well in the present chapter, as in the whole course of these enquiries ; these principles will thereby acquire new force.

There are therefore general precautions to be taken, to judge rightly of the state of the pulse, and to seize exactly all that regards it's modifications, either *critical* or *uncritical*, as hitherto exposed.

The age of the subject :---the critical modifications of the pulse appear in general less in children and old men, than in adults : the pulse of girls arrived at the state of womanhood, and that of women who are on the point of losing the menses, has in it always something of the characteristics

teristics of the pulse of the *matrix*: we must make the same reflections on that met in persons subject to the hemorrhoids; methinks I have observed that when children have the pulse well *formed, decided,* and like that of adults, it is no good sign for their constitution.

The constitutions:---sanguine constitutions have in general the pulse more *strong,* more disposed to become *superior,* than other constitutions; this disposition in the pulse inclined to become *superior,* is still more remarkable in youth; whereas the pulse of old men, or that of adults is more disposed to be *inferior.*

The digestion of the food:---it changes the natural pace of the pulse, it must not be definitively judged of during the digestion.

The periods of the diseases:---the pulse is more or less convulsive, and uncritical in the beginnings of diseases, and particularly of attacks or paroxysms is not the time to judge of the pulse, we must
wait

wait for the heighth, and the intervals of the paroxisms.

Lively passions :---they generally render the pulse, *small, convulsive*, UNCRITICAL, sometimes very *strong*, very *hurried*, and even *unequal*.

The different movements :---a cough, a yawning, exercise on horseback, or in a carriage, all this occasions in the pulse a kind of *constriction*, that hinders it to shew itself in it's natural state, and with that *freedom* which it has occasion for to be well judged : these causes produce in the pulse different effects that regard the *convulsive* pulses.

The action of remedies :---it suspends, it masks for some hours, and even for whole days, the pace of the pulse ; bleeding, reiterated purges, and glisters, sometimes deprive nature of the matter of the evacuations indicated by the pulse : (we do not say that these artificial evacuations, supply the place of the natural).

Chronical

Chronical and complicated diseases:---they *thwart* the critical efforts of the pulse, and make it very *complicated*, and hard to be characterized.

Nervous diseases, convulsive maladies in women:---they make the pulse *variable, uncertain, wandering, false*; that is, tho' it seems at first *critical*, or *secretory*, it is not however always so.

Pulses *habitually disordered*:---they are not quite *critical*. I have seen some hump-backed persons who had their pulse habitually *pectoral*.

The organical disposition of the arm:---it is such sometimes that it makes the artery very deep, almost insensible; there are persons the perforation of whose vessels is very small; we find some in whose wrist the artery seems bifurcated, others whose artery seems to form a kind of swelling like a small aneurism.

Recoveries:---they sometimes render the pulse *irregular, inconstant*, subject to *variations*.

riations which seem to indicate critical evacuations, don't always happen, because there is no matter, and that the disease has exhausted the patient's strength.

All these things, rightly calculated, and well estimated, enable us to judge of the pulse. Now practice furnisheth us in that respect with the means of overcoming obstacles, that appear at first insurmountable. Thus the signs drawn from the different movements of the pulse, are not false and deceitful, as many authors have advanced, but only so for those who don't take the necessary precautions to seize properly on those signs.

First, We must in general, to judge rightly of the state of the pulse, feel it several times. It rarely happens, but the state of the pulse receives, at first, some change by the presence of the physician, that makes it more *high*, or more *close*; practitioners never lose sight of the pulse, which they call the *physicians pulse*.

M m

Secondly,

Secondly, It is proper always to feel the pulse of the right arm, and then that of the left, because the differences which may be found in them are of great use to determine their proper character: there are occasions, when feeling the pulse of the carotid artery, as well as the pulsations of the arteries of the abdomen, or of the artery of the bending of the arm, is necessary and very useful.

Thirdly, The arm of the person whose pulse is felt, as well as the fingers, ought rather to be extended than bent: it is the means of giving the artery all it's liberty: the arm should besides lean in it's whole length on the edge which is on a line with the little finger: we may here remark, that there are persons who in feeling their own pulse, render it *intermitting*, and change it in different manners by suspending their respiration, through the effort of their attention.

Fourthly, The physician who feels the pulse, will much better learn all its modifications

difications by applying two or three fingers, the index and the following joined to each other in such a manner as to have their extremities parallel. They that examine the pulse with one finger, can't form so true a judgment of the movements of the artery, particularly of the vibration of it's tunics.

Fifthly, It is necessary to begin by forcing the fingers a little, and pressing the artery to feel it rightly. It is true that we must afterwards leave the artery to itself, and follow it thus in all the positions in which we can seize it. In compressing the artery, in relaxing it, or giving it it's liberty, it is above all important, not to press it more with one finger, than with the other; it is even useful to follow it in it's length, mounting from the wrist towards the top of the fore arm, and returning afterwards towards the wrist*.

* It is in this manner of following the artery downwards, that is principally founded the method of the Chinese, who have divided the arm into several touches; which deserves the attention of observers.

Sixthly, Physicians are often in too great a hurry in feeling the pulse; we should at least feel fifty pulsations or thereabout. The Chinese are much too slow in this operation; but there are physicians in Europe who are a little too hasty. Beginners, and such as want to form their touch, and verify the observations contained in this performance, can't proceed too slowly. The address of Charicles, physician to Tiberius, has been talked of with admiration, because he judged of the state of the emperor's pulse, by taking him by the hand in order to kiss it, as he rose from table. It is certain that there are cases where a skilful person decides without mistaking, after three or four pulsations.

Seventhly, The position of the patient, as well as that of the physician, are not things indifferent, in respect to *feeling* the pulse; if they are either the one or the other in a constrained posture, doubtless the pulse, and the judgment that is to be
formed

formed of it, will partake of that constrained position ; for a patient whose pulse is felt, ought to be sitting or lying on his back, with his head a little raised, and not on his side, particularly on that of which the pulse is felt.

We know that Sanctorius boasted of having invented a *pulse-pendulum*, which expressed the different movements of the pulse ; but we have no particular knowledge of this pretended *pulse-pendulum*.

It would probably be possible to make an instrument that might imitate the different modifications, and the different oscillations of the pulse. The spring in repeating watches made to beat against the finger, imitate perfectly certain *reduplications* of the artery, in the beatings that indicate the half-hours and quarters.

The *pulse pendulum* mentioned in the second chapter, and which is no more than a kind of common pendulum, was

invented at Montpellier, but is not so convenient as a watch.

Now this pendulum may be proper to measure the frequency of the pulse, or the quantity of pulsations; it is to be presumed, let some physicians say what they please, that there would be many remarks to be made in examining the pulse by this method. Floyer has written a very confused treatise, which had some relation to what regards the *frequency* of the pulse in different constitutions.

Mr. Senac, first physician to his Majesty, has made a great number of experiments to determine, among other things, the *greatest* and the *least frequency* that the pulse can have, whether in a state of health or in that of sickness. We may conceive it possible to range in particular classes all the *frequencies* which exist between those two fixed points. It is to be hoped that gentleman will one day communicate to the publick his discoveries on this important subject.

“ I know

“ I know, says Mr. Nihell, how many
 “ arguments the first appearance of this
 “ treatise will occasion, in order to give
 “ an infinite number of different explica-
 “ tions to the causes of the different species
 “ of pulses.---We can attribute these ap-
 “ pearances only to the nerves ; they are
 “ the first moving powers of the body,
 “ and the different pulses proceed from
 “ the immediate influence of the nerves
 “ on the vascular system.”

Each organical part of the living body
 hath nerves that enjoy a *sensibility*, a species
 or particular degree of *sentiment*. This
sensibility constitutes the life of the nerves ;
 it is the necessary consequence of their con-
 stitution, of their position, and of their modi-
 fication in the body, or in it's parts when
 they are not entirely deprived of the con-
 ditions without which life can neither shew
 itself nor exist. The *sensibility* is of different
 kinds, and in general more or less apparent
 in the different functions ; it is confounded
 more or less with the *mobility* or contrac-
 M m 4 tility :

tility. The functions wherein the movement or *mobility* shews itself evidently, have less *sensibility* or *sentiment*; on the contrary, there is but little movement or *mobility* in the functions which are exercised only by the *sentiment*, or *sensibility*.

Hippocrates said, that all the parts of an animal were animated; it is said, Epicurus was of opinion that death was the cessation of *sensibility*; life was therefore, according to him, the presence of that same sensibility. All the antient philosophers and physicians were pretty near of the same opinion: they attributed to each organ, active faculties, particular *tastes*. The *strictum* of the methodists, the tonic movement, the fibrillary movement, the stimulus, the irritation, the vellication of the nerves, the spasms, the contractility of the moderns, all convey pretty nearly the same idea; to wit, the *activity* of the nerves, the extent of that *activity*, a virtue, a propriety, a particular disposition, which Glisson called irritability, and which we meet with every moment,

moment, in all the works of practitioners, particularly of the *Solidists*, Wepfer, Baglivi Hecquet, &c.

The movements of the pulse depend, without doubt, on the *sensibility* of the nerves of the heart and arteries. The pulse ought to be placed in the class of functions in which the movement is evident, and the sentiment less so. Each organ being *sensible* in its way, and not being able to perform it's functions, especially in a manner any way forced, without making some impression on the arterial and veiny system, as well as on the nervous; it is evident that each organ must make a particular impression on the pulse: this impression will be almost insensible, as in the natural state, when the organ is not more agitated than usual. It will be on the contrary very evident, as in the state of a critical effort, *when the organ is* under constraint in it's functions, and makes an extraordinary effort.

This

This is all that we shall say, at present on the subject, because we wave entering into many questions, more curious than useful, which may be proposed with regard to the causes of the different critical and uncritical modifications of the pulse. All such questions belong to meer theory, and this performance is, as we have hinted in the beginning, founded entirely on practice. It is a history, or series of observations, whose causes should not be enquired into, till these facts are generally known. It will be very necessary to decline any theory that may tend to render these facts doubtful, and by that means obstruct the progress of observation.

F I N I S.

I N D E X.

Chap.	1.	A General idea of the pulse, and of each different species. - - - -	Page 1
	2.	On the particular manner in which the different species of the pulse shall be distinguished in this treatise. - - - -	9
	3.	General division of the pulse.	17
	4.	The Division of the <i>developed</i> or <i>uncritical</i> pulse. - - - -	22
	5.	Of the <i>superior</i> pulse, and it's different species. - -	27
	6.	On the pulse of the critical secretions of the breast, or <i>simple pectoral</i> . - - -	31
			Chap.

I N D E X.

Chap. 7.	On the pulse of the critical secretions of the throat, or <i>simple guttural</i> . - -	44
8.	On the pulse of the secretions of the nose or <i>simple nasal</i> . 51	51
9.	Of the <i>inferior</i> pulse, and it's different species. - - -	77
10.	On the pulse that indicates vomiting, or <i>simple stomachal</i> . - . - - -	81
11.	On the pulse that indicates the critical evacuations of the belly, or <i>simple intestinal</i> . 90	90
12.	On the pulse of the menses, or <i>simple pulse of the matrix</i> . - - - - -	105
13.	On the <i>simple</i> pulse of the liver. - - - - -	117
14.	On the <i>simple</i> pulse of the hemorrhoids. - - -	126
15.	On the <i>simple</i> pulse of the critical secretion of the urine. - - - - -	140
16.	On the pulse that indicates the critical sweat. - - -	149
	Chap.	

I N D E X.

Chap. 17.	On the <i>critical</i> pulses <i>combined</i> with each other or com- pounded. - - - -	166
18.	On the <i>combination</i> of the <i>su- perior</i> pulses. - - - -	169
19.	On the <i>combination</i> of the <i>su- perior</i> pulse with the <i>in- testinal</i> . - - - -	177
20.	On the <i>combination</i> of each dif- ferent species of the <i>inferior</i> pulse, with each different species of the <i>superior</i> . --	188
21.	On the pulse of the <i>menfes</i> , and <i>hemorrhoids</i> , <i>combined</i> with that of other <i>hemorr- hages</i> , and principally with the <i>nasal</i> . - - - -	199
22.	On the pulse of <i>sweating</i> , com- bined with the other species of <i>critical</i> pulses. - - -	216
23.	On the pulse of <i>irritation</i> or <i>uncritical</i> . - - - -	225
24.	On the pulse of <i>irritation</i> com- plicated with the <i>critical</i> pulse, &c. - - - -	231
	Chap.	

I N D E X.

- Chap. 25. On the pulse of irritation *complicated* with the *critical* pulse, in acute diseases, which have a favourable termination. 242
26. On the pulse of irritation, *complicated* with the *critical* pulses, in chronical diseases. - - - - 252
27. On the *complication* of the pulse of irritation, with the critical pulses in acute diseases which terminate unsuccessfully. 269
28. On the *complication* of the pulse in *convulsive*, *nervous*, (or *nerval*,) or more *nervous* than *humoral*. - - - - 284
29. On the *complication* of the pulse in suppurations after acute diseases. - - - - 298
30. On the *complication* of the pulse, in malignant fevers. - - 332
31. On the difference which is sometimes found in the pulse of the two sides, and in that of the different parts of the human body. - - - - 350
- Chap.

I N D E X.

- Chap. 32. Detached observations which confirm what has been proposed upon each different species of the *superior, inferior, capital, pectoral*, pulses. 371
33. On the time and day of the disease on which we are to expect the secretions indicated by the critical changes of the pulse. - - - 405
34. On the changes that happen in the pulse, after the action of emetics, diluters, purgatives, bleeding, and opium. - - - 429
35. On the precautions to be taken for the application of the rules proposed in this performance: of the exceptions to these rules: of the pulse of old men, and that of infants. Remarks on the general causes of the critical changes of the pulse, --- 503



B.P.L. Bindery
AUG 31 1880

ed;
ollect 20 cents, on
ys and holidays; n
sehold, and not to
Hall.
ding this book mutila
ected to report it; a
y of books.
an be established bec
from the Library, throug

da 01

